JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V FEBRUARY, 1917 Number 2

CONTENTS

		Page
Frontispiece—"The Press Fete at the Hippodrome." By Vierge and Scott		50
Shadows and Straws		51
Regulating the Practice of Architecture as a Profession	*Peter B. Wight*	56
The Experiences of a Member of the Institute on the War Front of the Somme, in France		57
Architectural Draughtsmen. IX—Daniel Urrabieta Vierge	*Annie L. M. Kimball*	61
Remaking Belgium	*Geo. B. Ford*	68
Beaux-Arts Institute of Design		69
Institute Business		71
News Notes		73
Obituary		73
Structural Service Department		74

Published Monthly by

THE AMERICAN INSTITUTE OF ARCHITECTS

1159 Mulberry Street, Harrisburg, Pa. The Octagon, Washington, D. C.

Committee on Publications

Frank C. Baldwin, *Chairman*
William Emerson
H. Van Buren Magonigle

Charles Harris Whitaker, Editor
The Octagon

C. Grant La Farge
Charles L. Borie, Jr
Thomas R. Kimball

35 CENTS A COPY. $3.50 PER YEAR

Checks or P. O. orders should be made payable to The Journal of the American Institute of Architects, and mailed to The Octagon, Washington, D. C.

Copyright, 1917, by the American Institute of Architects. Entered as second-class matter, December 20, 1912, at the Post Office at Harrisburg, Pa., under Act of Congress of August 24, 1912

Defend Your Steam!

THE most efficient armor known for the defense of steam is "85% Magnesia," when applied according to the best established practise.

Every inch of Magnesia contains millions of tiny air-cells. Each cell imprisons dead air, and gives the heat no chance to travel through.

To every 85 parts of Magnesia there is added 15 parts of asbestos as a binder to give structural strength. With this formula no wear-out is possible. After 25 years of service these "85% Magnesia" coverings have been stripped off and re-applied as efficient as when new.

The matchless efficiency of "85% Magnesia" is why it is the regular standard covering in the United States Navy; that is why it is used on all modern locomotives; that is why power-plants and big buildings are equipped with it.

Are *your* steam pipes protected with "85% Magnesia?" Are the coverings thick enough for the highest saving?

A full Specification is issued by the Magnesia Association of America. Sent free upon request to anyone interested. Write for it.

"85% MAGNESIA"

The Universal Covering for Pipes and Boilers

MAGNESIA ASSOCIATION OF AMERICA, 381 FOURTH AVENUE, NEW YORK

Executive Committee:

GEORGE D. CRABBS	The Philip Carey Co.	Cincinnati, Ohio
ALVIN M. EHRET	Ehret Magnesia Mfg. Co.	Valley Forge, Penna
J. R. SWIFT	The Franklin Mfg. Co.	Franklin, Penna.
R. V. MATTISON, Jr.	Keasbey & Mattison Co.	Ambler, Penna.

THE AMERICAN INSTITUTE OF ARCHITECTS

THE OCTAGON, WASHINGTON, D. C.

OFFICERS FOR 1917

President	JOHN LAWRENCE MAURAN, St. Louis, Mo.
First Vice-President	C. GRANT LA FARGE, New York City
Second Vice-President	W. R. B. WILLCOX, Seattle, Wash.
Secretary	W. STANLEY PARKER, Boston, Mass.
Treasurer	D. EVERETT WAID, 1 Madison Ave., New York City

BOARD OF DIRECTORS

For One Year

CHARLES A. COOLIDGE, 122 Ames Bldg., Boston, Mass.
CHARLES A. FAVROT, 505 Perrin Bldg., New Orleans, La.
ELMER C. JENSEN, 1401 New York Life Bldg., Chicago, Ill.

For Two Years

EDWIN H. BROWN, 716 Fourth Ave., Minneapolis, Minn.
BEN J. LUBSCHEZ, Reliance Bldg., Kansas City, Mo.
HORACE WELLS SELLERS, 1301 Stephen Girard Bldg., Philadelphia, Pa.

For Three Years

W. B. FAVILLE, Balboa Bldg., San Francisco, Cal.
BURT L. FENNER, 101 Park Ave., New York City.
THOMAS R. KIMBALL, World-Herald Bldg., Omaha, Neb.

COUNSEL TO THE INSTITUTE

L. B. RUNK, Land Title Bldg., Philadelphia, Pa.

LIST OF CHAPTERS, 1917

BALTIMORE.—*Josias Pennington, 330 North Charles Street; †Clyde N. Friz, 1523 Munsey Bldg., Baltimore.

BOSTON.—*Ralph Adams Cram, 15 Beacon St.; †Charles Collens, 40 Central St., Boston.

BROOKLYN.—*Frank J. Helmle, 190 Montague Street, Brooklyn; †Carroll H. Pratt, 103 Park Avenue, New York.

BUFFALO.—*Franklyn J. Kidd, 110 Franklin St.; †Robert North, 1314 Prudential Bldg., Buffalo.

CENTRAL NEW YORK.—*O. H. Waltz, Trust Co. Bldg., Rochester; †George Young, Jr., Dept. of Architecture, Cornell University, Ithaca, N. Y.

CINCINNATI.—*Rudolph Tietig, Lyric Building; †L. W. Fahnestock, Carew Building.

CLEVELAND.—*Abram Garfield, Garfield Building; †C. E. Tousley, 4500 Euclid Avenue.

COLORADO.—*Thomas MacLaren, Hagerman Bldg., Colorado Springs; †Harry J. Manning, Acting Sec'y, 214 Majestic Bldg., Denver.

COLUMBUS.—*C. F. Richards, 1006 Hartman Bldg.; †Charles L. Inscho, 145 North High St., Columbus.

CONNECTICUT.—*L. W. Robinson, 42 Church Street, New Haven; †Francis E. Waterman, 36 Pearl St., Hartford.

DAYTON.—*Harry J. Williams, 591 Arcade Bldg.; †Harry I. Schenck, 591 Arcade Bldg., Dayton, Ohio.

GEORGIA.—*William J. Sayward, Candler Bldg.; †W. J. J. Chase, Candler Bldg., Atlanta.

ILLINOIS.—*Frederick W. Perkins, 332 South Michigan Ave.; †Elmo C. Lowe, 14 East Jackson Blvd., Chicago.

INDIANA.—*M. S. Mahurin, Swinney Block, Fort Wayne; †Herbert W. Foltz, Lemcke Annex, Suite 1456, Indianapolis.

IOWA —*Parke T. Burrows, 62–64 Davenport Savings Bank Bldg., Davenport; †Eugene H. Taylor, 222 S. Third St., Cedar Rapids.

KANSAS CITY.—*W. H. Sayler, Gumbel Bldg.; †Selby H. Kurfiss, Scarritt Bldg.

LOUISIANA.—*L. A. Livaudais, 505 Title Guarantee Bldg.; †C. R. Armstrong, 507 Denegre Bldg., New Orleans.

LOUISVILLE.—*Brinton B. Davis, Inter-Southern Bldg.; †Val P. Collins, Paul Jones Bldg., Louisville, Ky.

MICHIGAN.—*M. R. Burrowes, 701 Trussed Concrete Bldg.; †Dalton J. von Schneider, 1103 Union Trust Bldg., Detroit.

*Presidents.

MINNESOTA.—*William Gray Purcell, 422 Auditorium Bldg.; †C. B. Chapman, 84 South Tenth St., Minneapolis.

NEW JERSEY.—*Henry Baechlin, 665 Broad St., Newark; †Hugh Roberts, 1 Exchange Place, Jersey City.

NEW YORK.—*William Emerson, 597 Fifth Avenue; †Stowe Phelps, 20 West 43rd Street, New York City.

NORTH CAROLINA.—*Hill C. Linthicum, 703 Jackson St., Durham; †Willard C. Northup, Winston-Salem.

OREGON.—*Joseph Jacobberger, Board of Trade Bldg.; †W. C. Knighton, Tilford Bldg., Portland.

PHILADELPHIA.—*Horace Wells Sellers, Stephen Girard Bldg.; †Edward A. Crane, 1012 Walnut St., Philadelphia.

PITTSBURGH.—*Richard Hooker, Farmers' Bank Bldg.; †Frederick T. Bigger, Nixon Bldg., Pittsburgh.

RHODE ISLAND.—*W. T. Roberston, 1216 Turk's Head Bldg.; †John Hutchins Cady, 10 Weybosset St., Providence.

SAN FRANCISCO.—*Edgar A. Mathews, 251 Post St.; †M. M. Bruce, 1281 Flood Bldg., San Francisco.

SOUTH CAROLINA.—*E. D. Sompayrac, Palmetto Bldg., Columbia; †N. G. Walker, Rock-Hill.

SOUTHERN CALIFORNIA.—*J. E. Allison, Hibernian Building; †A. R. Walker, Hibernian Building, Los Angeles.

SOUTHERN PENNSYLVANIA.—*C. Emlen Urban, Woolworth Bldg., Lancaster; †Reinhardt Dempwolf, 123 E. Philadelphia St., York.

ST. LOUIS.—*E. J. Russell, Chemical Bldg.; †Walter L. Rathmann, Chemical Bldg., St. Louis.

TEXAS.—*O. J. Lorehn, 302 Le Power Bldg., Houston;† F. E. Giesecke, University of Texas, School of Architecture, Austin.

TOLEDO.—*E. O. Fallis, 208 The Nasby; †George S. Mills, Ohio Bldg., Toledo.

VIRGINIA.—*Clarence A. Neff, 600 Seaboard Bank Bldg., Norfolk; †William C. Noland, 914 Travelers Bldg., Richmond.

WASHINGTON (D. C.).—*Waddy B. Wood, 816 Connecticut Ave.; †R. L. Macneil, Union Trust Bldg.

WASHINGTON STATE.—*Charles H. Bebb, Denny Bldg.; †J. S. Coté, 520 Haight Bldg., Seattle.

WISCONSIN.—*T. L. Rose, 1312 Majestic Bldg.;† Henry J. Rotier, 813 Goldsmith Bldg., Milwaukeee.

WORCESTER.—*George H. Clemence, 405 Main St., †Lucius W. Briggs, 390 Main St., Worcester, Mass.

†Secretaries.

"The Press Fete at the Hippodrome." By Vierge and Scott. From the Le Monde Illustré

JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Vol. V FEBRUARY, 1917 No. 2

Shadows and Straws

THE OMNIBUS PUBLIC-BUILDINGS BILL passed the House of Representatives January 19, by a vote of 234 to 92, with 108 not voting. The affirmative votes are accounted for as follows:

Those Voting "Yea" Who Had Items in the Bill.—ALABAMA—Almon, Blackmon, Burnett, Dent, Gray, Steagall; ARKANSAS—Caraway, Jacoway, Oldfield, Taylor, Wingo; ARIZONA—Hayden; CALIFORNIA—Church, Elston, Hayes, Kahn, Kettner, Raker, Randall; COLORADO—Taylor, Timberlake; FLORIDA—Clark, Sears, Sparkman; GEORGIA—Bell, Crisp, Howard, Hughes, Lee, Park, Rucker, Vinson, Walker; IDAHO—McCracken, Smith; ILLINOIS—Copley, Denison, Fuller, Gallagher, King, McAndrews, Rainey, Rodenberg, Sterling, Stone, Wheeler, Wilson; INDIANA—Cline, Lieb; IOWA—Green, Haugen, Hull, Kennedy, Ramseyer, Steele, Towner, Woods; KANSAS—Ayres, Connelly, Helvering; KENTUCKY—Barkley, Helm, Kincheloe, Langley, Powers, Rouse, Thomas; LOUISIANA—Aswell, Estopinal, Lazaro, Martin, Watkins, Wilson; MAINE—Guernsey; MARYLAND—Price; MASSACHUSETTS—Gallivan, Tague; MICHIGAN—Fordney, Hamilton, Kelley, McLaughlin, Smith; MINNESOTA—Davis, Miller, Van Dyke, Volstead, Smith, Steenerson; MISSISSIPPI—Collier, Candler, Harrison, Sisson; MISSOURI—Alexander, Borland, Decker, Dickinson, Hamlin, Hensley, Lloyd, Rubey, Russell, Shackleford; MONTANA—Stout; NEBRASKA—Kinkaid; Shallenberger, Sloan, Stephens; NEW HAMPSHIRE—Sulloway, Wason; NEW JERSEY—Bacharach, Eagan, Hart, Lehlbach; NEW MEXICO—Hernandez; NEW YORK—Bruckner, Charles, Danforth, Gould, Mott, Snell, Snyder; NORTH CAROLINA—Doughton, Hood, Kitchin, Small, Webb; NORTH DAKOTA—Helgesen, Norton; OHIO—Brumbaugh, Cooper, Emerson, Hollingsworth, Key, Matthews, Overmyer, Ricketts, Sherwood; OKLAHOMA—Carter, Davenport, Ferris, Hastings, Morgan Murray, Thompson; OREGON—Sinnott; PENNSYLVANIA—Bailey, Butler, Farr, Focht, Griest, Heaton, Hopwood, Kiess, Kreider, Lesher, Miller, Moore, North, Porter, Watson; RHODE ISLAND—O'Shaunessy; SOUTH CAROLINA—Aiken, Byrnes, Nicholls, Whaley; SOUTH DAKOTA—Dillon; TENNESSEE—Austin, Houston, Moon, Padgett, Sims; TEXAS—Buchanan, Dies, Eagle, Gregg, McLemore, Smith, Sumners, Young; VIRGINIA—Harrison, Montague, Slemp; WASHINGTON—Humphrey; WEST VIRGINIA—Bowers, Cooper, Littlepage, Neely, Sutherland, Woodyard; WISCONSIN—Browne, Burke, Cary, Cooper, Konop; WYOMING——Mondell.—195.

Those Voting "Yea" Who Did Not Have Items in the Bill.—ALABAMA—Abercrombie, Oliver; CALIFORNIA—Curry; COLORADO—Hilliard; GEORGIA—Adamson; ILLINOIS—Buchanan, Madden, McDermott, W. E. Williams; KENTUCKY—Fields; LOUISIANA—Dupré; MARYLAND—Linthicum, Mudd; MISSISSIPPI—Venable; MISSOURI—Dyer, Meeker; NEW JERSEY—Browning; NEW YORK—Caldwell, Carew, Dale, Dooling, London, Magee, Riordan, Swift, Ward; OHIO—Switzer; OREGON—Hawley; PENNSYLVANIA—Crago, Garland, Vare; SOUTH CAROLINA—Lever; TENNESSEE—McKellar; TEXAS—Black; UTAH—Howell; VERMONT—Dale; VIRGINIA—Watson; WASHINGTON—Hadley; WEST VIRGINIA—Saunders.—39.

The negative votes were as follows:

Those Voting "Nay" Who Had Items in the Bill.—CONNECTICUT—Freeman, Glynn; DELAWARE—Miller; ILLINOIS—Foster, Tavenner; Williams (T. S.); INDIANA—Cullop, Dixon, Rauch; IOWA—Dowell, Sweet; KANSAS—Anthony, Doolittle, Shouse; MARYLAND—Coady; MASSACHUSETTS—Carter, Dallinger, Gardner, Paige, Rogers, Treadway, Walsh, Winslow; MICHIGAN—Doremus, Loud, Scott; MINNESOTA—Anderson, Lindbergh; NEW YORK—Platt; NORTH CAROLINA—Page; NORTH DAKOTA—Young; OHIO—Ashbrook, Fess; PENNSYLVANIA—Temple; SOUTH DAKOTA—Johnson; TENNESSEE—Garrett; VIRGINIA—Glass; WASHINGTON—Johnson; WISCONSIN—Esch, Lenroot Reilly.—41.

Those Voting "Nay" Who Did Not Have Items in the Bill.—ALABAMA—Huddleston; CALIFORNIA—Nolan; COLORADO—Keating; CONNECTICUT—Tilson; ILLINOIS—Foss, Mann, McKenzie; INDIANA—Barnhart, Cox, Gray, Moores, Moss, Wood; IOWA—Good; KENTUCKY Sherley; MAINE—Peters; MASSACHUSETTS—Gillett, Tinkham; MICHIGAN—Crampton, James, Nichols; MINNESOTA—Ellsworth, Schall; MISSISSIPPI—Quin; NEBRASKA—Reavis; NEW JERSEY—Parker; NEW YORK—Fitzgerald, Hicks, Maher, Rowe; OHIO—Allen, Crosser, Gordon, Kearns, Longworth, McCulloch, Williams; OREGON—McArthur; PENNSYLVANIA—Coleman, Keister, McFadden; SOUTH DAKOTA—Gandy; TENNESSEE—Byrns, Hull; TEXAS—Rayburn, Stephens; VERMONT—Greene; WASHINGTON—Dill, La Follette; WISCONSIN—Frear, Stafford.—51.

Not Voting.—Adair, Barchfeld, Beakes, Beales, Benedict, Bennet, Booher, Britt, Britten, Burgess, Callaway, Campbell, Cannon, Cantrill, Capstick, Carlin, Casey, Chandler (N. Y.), Chiperfield, Conry, Costello, Darrow, Davis (Tex.), Dempsey, Dewalt, Driscoll, Drukker, Dunn, Edmonds, Edwards, Evans, Fairchild, Farley, Finley, Flood, Flynn, Gard, Garner, Godwin (N. C.), Goodwin (Ark.), Graham, Gray (N. J.), Greene (Mass.), Griffin, Hamill, Hamilton (N. Y.), Hardy, Haskell, Heflin, Henry, Hill, Hinds, Holland, Hulbert, Humphreys (Miss.), Husted, Hutchinson, Igoe, Johnson (Ky.), Jones, Kennedy (R. I.), Kent, Lafean, Lewis, Liebel, Lobeck, Loft, McClintic, McGillicuddy, McKinley, Mapes, Mays, Mooney, Morgan (La.), Morin, Morrison, Nelson, Oakey, Oglesby, Olney, Parker (N. Y.), Patten, Phelan, Pou, Pratt, Ragsdale, Roberts (Mass.), Roberts (Nev.), Rowland, Rucker (Mo.), Russell (Ohio), Sabath, Sanford, Scott (Pa.), Scully, Sells, Siegel, Slayden, Smith (N. Y.), Stedman, Steele (Pa.), Stephens (Miss.), Stiness, Taggart, Talbott, Tillman, Wilson (Fla.), Wise.—108.

The Bill is now before the Senate, but there seems to be much ground for believing that it will not pass that body and may not even be reported for discussion.

THE CHARACTER OF THE parliamentary procedure which accompanied the passage of this measure in the House makes the pages of the Congressional Record anything but dull. Volumes might be written upon the phases of political life revealed in the utterances of certain members and in the rules arbitrarily imposed for preventing discussion.

Mr. Gillett (Massachusetts) said:

"We all know this bill is not brought in here to improve the post-office efficiency. It is brought in largely to improve Congressional fences. It is not peculiar to this com-

mittee; it has always been so. These public-buildings bills are brought in the interest of Members.

"My colleague (Mr. Gardner) on yesterday suggested that he voted for the rule because he hoped that the House would strike out the unnecessary items, and then he could vote for the bill. I do not believe any man in the House shared that hope, because as soon as you strike out one item the bill loses one vote, and if you keep on striking out unnecessary items you keep losing votes until at last there will not be enough enthusiasm for the bill to call for the yeas and nays. You cannot amend, improve, and perfect a bill when each Member is personally interested in it, because we are none of us impartial to the matters which affect our personal interests.

"The very way in which this bill was prepared shows that it was not prepared for the public interest. It was prepared for the private interests of Congressmen. The chairman of the committee last year sent out letters to every Congressman suggesting that he send in an item for the bill. Is that the way the other committees go to work? Is that the way any appropriation bill would be prepared?"

MR. LENROOT (WISCONSIN), referring to the numerous important public matters which are falling a sacrifice to pork, said:

"Those bills must wait, and in all probability never will be considered at this session at all, in order that the membership of this House, not treating this question as a national question, not looking at these things from the standpoint of the national good, may be able to go home on the fourth of March and say to their constituents, 'I got so much money out of the National Treasury for a public building in my district.'"

SPEAKING IN RELATION to the section of the bill upon which we commented last month and which fixed $10,000 as a minimum of postal receipts for three successive years, as a basis for a public building, Mr. Fess (Ohio) said:

"It will be noted that the last paragraph fixes $10,000 as the sum of postal receipts as a necessary requirement for a building. However, it expressly declares 'hereafter' this shall be the requirement, then to be doubly safe, declares that 'nothing herein shall apply to cities or towns where sites for public buildings have already been acquired or authorized.' Splendid! Here is a bill that inserts the items which would be excluded by its last provision, a limitation demanded by common sense, but covers them by providing it shall not be operative as to them. If this provision is a correct position, why not prove its merit by respecting it, by omitting all items in this bill which it excludes in the future? * * *

"In other words, if this bill were made operative on its own items, it would exclude 80 per cent of those in Alabama, 50 per cent of those in Arkansas, 28 per cent of those in Florida, 90 per cent of Georgia, 92 per cent of Kentucky, 37 per cent of Louisiana, 85 per cent of Mississippi, 75 per cent of North Carolina, 75 per cent of South Carolina, 100 per cent of Tennessee, 20 per cent of Texas, and so forth."

THE RULE GOVERNING the bill in the House, originally presented by Chairman Clark, *and before he announced that the bill would be thrown open to discussion*, provided for consideration of the bill in Committee of the Whole, where roll-calls do not occur; for control of the four hours' debate by himself and a sympathetic colleague (Mr. Austin); that none but "committee amendments" could be offered; and that after the farce of a Committee on the Whole session, no deliberation or amendment would be permitted. The rule was not adopted, but (and here we quote from the *Searchlight on Congress*):

"Chairman Henry, of the Committee on Rules, had presented a special rule for the consideration of the Omnibus Public-Buildings Bill, different from the Clark rule in that it placed control of the time for general debate against the measure in the hands of Mr. Mooney (Ohio) and provided the usual opportunities for amendments under the five-minute rule. The Henry rule also permitted one motion to recommit. It was discovered after this substitute rule was reported that Mr. Mooney was not present and had not been in attendance at House sessions for some time. Accordingly, control of the time in general debate against the measure was placed in the hands of Mr. Ashbrook (Ohio).

"The House adopted the Henry rule and began consideration of the measure January 16. In the four hours of general debate Messrs. Clark (Florida), Mondell (Wyoming), Magee (New York), Smith (Michigan), Emerson (Ohio), Kahn (California), Davis (Texas), and Burnett (Alabama) spoke for the bill. It was opposed by Messrs. Barnhart (Indiana), James (Michigan), Gillett (Massachusetts), Ashbrook (Ohio), Cox (Indiana), Fess (Ohio), Kent (California), and Frear (Wisconsin).

"THEN CAME THE HIGH-HANDED proceedings by which opponents of the bill were gagged in defiance of the rule which seemed to guarantee their rights to present and discuss amendments. When the bill was taken up for amendment under the five-minute rule, Messrs. Frear (Wisconsin), James (Michigan), and others began to offer bona fide amendments to strike out various items, and to present facts as to populations, postal receipts, comparative costs, etc. This greatly angered the pork-barrel combination back of the bill and a way was found to stop that kind of debate.

"Mr. Cline (Indiana) was presiding as chairman of the Committee of the Whole and made the ruling which accomplished the gagging. His ruling upheld the right of Chairman Clark, of the Public Buildings Committee to take the floor on a subterfuge motion to 'strike out the last word' of each paragraph and then, having said a few perfunctory words and that having held to constitute 'debate,' to move to close all debate on the paragraph, thus shutting out all opponents of the bill who had facts to present and honest amendments to offer.

"The best way to illustrate this expensive farce is to quote from the *Congressional Record*. On January 18,

page 1826, this occurred, which was typical of the performance with reference to other items:

'The Clerk read as follows:
'United States post office at Green River, Wyo., $25,000.
'Mr. Clark, of Florida. Mr. Chairman, I move to strike out the last word. The town of Green River, Wyo., is a very prosperous place. There are many Federal activities there, and this post office is absolutely essential to that community. I move that all debate upon this paragraph and amendments thereto be now closed.
'The Chairman. The question is on the motion to close debate upon the paragraph and amendments thereto.
'The question was taken; and on a division (demanded by Mr. Frear) there were: Ayes, 97; noes, 5.
'So the motion was agreed to.
'The Chairman. The question now is upon the amendment offered by the gentleman from Florida to strike out the last word.
'The question was taken; and on a division (demanded by Mr. James) there were: Ayes, 0; noes, 52.
'So the amendment was rejected.'

"The following day, when the bill was finished, better judgment prevailed and the steam roller was not so much in use. But the indefensible ruling had been made and another precedent added to the vicious parliamentary system of the House."

THE USUAL ASSAULT upon the Institute and upon the profession of architecture was not missing from the debate. Raising the question of the salary to be paid the Supervising Architect, Mr. Morgan (Oklahoma) suggested that it be decreased from the $7,500 provided in the bill, to $6,000. In reply, Mr. Clark (Florida) said:

"The architects of this country make a great deal more money than that. You can not get a man who is a first-class man to take that place for $5,000 or $6,000. I question whether you would be able to get him for $7,500. . . . The Committee discussed fixing it at $10,000. For myself I would be perfectly willing to pay $20,000 a year to a good man who would go into that office and do the work that ought to be done. He can save his salary a dozen times over in the course of a year, because if we get the right man—and we have attempted here to get not only a good architect but a good business man—if we can get that kind of a combination the Government could well afford to pay him $50,000 a year and save those enormous fees that are paid to outside architects who work upon these great buildings."

At another time, Mr. Clark said:

". . . the fight against these small buildings is not the main fight against the bill . . . the fight that has been inaugurated against the bill is not because of a few little buildings in small towns here and there. The American Institute of Architects is the Architectural Trust of the United States. They have been getting the "pork" for all these years. [Applause.] They hung around the committee room for days and weeks, and they wanted to write the legislation in this bill. The Supervising Architect's office has not for years constructed one of these large buildings in the great cities or in the city of Washington. It has always been farmed out to the American Institute of Architects or their members, and they get 6 per cent on the gross cost of the building. On a $3,000,000 building they would pull down $180,000 for drawing the plans and specifications, and I am here to say I believe, and the committee believes, that the United States Government ought to have men competent to do that work in their own public-building office without going outside to hire these people to do it."

Every architect in the United States is familiar with this sort of injustice, but every citizen may well pause and consider that today, in a nation purporting to be great, free, civilized, wealthy, progressive, the architectural destinies of the buildings of the Government rest in such hands! It is humiliating to the point of disgust! And the record of those three days of wasted debate is filled with such allusions, such ignorances, such prejudices, such misrepresentations.

Less than three years ago the same Mr. Clark signed his name to the report of the Public-Buildings Commission, containing the following:

"It is found that the cost of preparing plans and placing work under contract in the Supervising Architect's office is approximately 4 per cent. Three per cent additional is required to supervise and complete the work."

Competent authorities believe that this total of 7 per cent—compared with the customary 6 per cent paid to reputable architects in private practice—would amount to more than 8 per cent if all items of expense were properly included in making the figures. Fortunately there are members of Congress who understand the real situation and a ray of hope illumines the fight to bring it to an end.

FOR THE FINAL CHAPTER in this lamentable episode we have reserved the architectural gem. Mr. Clark, in his report accompanying the Omnibus Bill, explained that a "factory or block type" of building was proposed to meet the criticism of extravagance which his committee had suffered. In replying to a question on this subject, on the floor, during the debate, Mr. Clark said:

"There is a box type of building which is now proposed which would answer the purpose very well."

He was speaking as a representative of the Government of the United States, charged by Congress with the welfare of our Public Buildings and Grounds!

ON JANUARY 23 there was introduced by Representative Tinkham, of Massachusetts, the following bill, which embodies the principles for which the Institute contends. The Bill is known as H.R. 20410 and is as follows:

A BILL to create a temporary building commission for the purpose of investigating all the public-building needs and methods of the United States in order to recommend a public-building policy.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That to enable the Congress to enact legislation authorizing the erection of public buildings for the United States in such manner that they may be planned, designed, and constructed to give the maximum result in value of expenditure in convenience to the public, in ease of operation, in beauty of appearance, in celerity in meeting present urgent needs, and in carefulness in their provisions for future growth there shall be appointed by the President of the United States a temporary building commission to consist of five citizens of the United States whose knowledge, experience in building undertakings, and whose integrity shall command public confidence and respect, one of whom shall be an architect and one of whom shall be an engineer, and the duty of which commission shall be to study and investigate all the elements of the public-building requirements of the United States, including the purchase of land; the best methods for determining the size, cost, and character of buildings; the provision for standardizing such units of size and plan as are possible; means for coördinating the valuable data and experience now possesed by various departments and bureaus with the highest skilled service in the planning and designing of public buildings; and within two years from the appointment of the commission shall report its conclusions to Congress and make such recommendations or suggest such legislation as it may deem wise to insure that all Government public buildings shall be built along lines of sound business procedure and reflect, in their erection, the highest attainments in building construction; and the commission is hereby empowered to employ such expert and clerical assistance as it may require; and the sum of $50,000 is hereby appropriated for the expenses of the said commission.

THE IDEA OF AN EXPERT COMMISSION of this kind has appealed to many Senators and Representatives, and the press of the country has welcomed it as a simple business procedure which cannot but meet favor with business men.

The New York *Times* said, editorially:

"Public buildings are a technical, not a political, matter. To begin with get the best experts; let them report a plan. There is none now. If a general public-building policy can be laid down and agreed upon, the administrative body to take charge of it will have to be decided upon. The immediate, the initial, step, is to provide a competent and civilized policy. Representative Tinkham, of Massachusetts, has just introduced a bill providing for the appointment of a temporary building commission. . . . The commission is to report within two years from its appointment. Congress is suspicious of experts. Possibly Mr. Tinkham felt that he was going pretty far in specifying an architect and an engineer, and thought it safer not to be too concrete as to the other three citizens. . . . Whatever the best composition of a commission, a commission there should be. Will Congress forgive the experts, a class that the United States will have to make a mightily increased use of in the years after the war, and consent to a commission? Mr. Tinkham asks for $50,000 for its expenses. It could show how to save a great many millions."

THE SATURDAY EVENING POST said:

"Friends of pork cry that Congress will never surrender its right to appropriate public money for public buildings. Nobody we have heard of ever asked it to, or knows of any way, short of a constitutional amendment, whereby it could make that surrender.

"Foes of pork urge that public buildings be erected according to the needs of public business, and not according to the political needs of individual congressmen.

"That is the whole matter. The American Institute of Architects proposes a board of experts to study the subject broadly and work out a plan under which the construction of public buildings, designed by competent architects, shall be recommended to Congress as public business requires them. The question is whether Congress proposes to consult experts or merely to pursue selfish individual ends.

"Pork has not been propitious to architecture. Government architecture, on the whole, lags much behind private enterprise. The Government ought to lead; but it does not—and pork is one of the reasons."

TO THE SENATORS and Representatives of Rhode Island, the Rhode Island Chapter addressed the following letter in connection with the public-buildings bill:

"The Rhode Island Chapter of the American Institute of Architects wishes to place itself on record as strongly opposed to that portion of the Public-Buildings Bill which provides for the construction of a portico for the Narragansett Pier post office, involving an expenditure of $10,000.

"The Chapter regards this appropriation as a fair example of the wasteful methods which are applied to the construction of federal public buildings. It has long noted with disfavor the undue extravagance on the part of the federal Government in its appropriations for public buildings in other states; and it resents this example of "pork" legislation in its own state. Even if the portico were a necessity, the total appropriation for the building which, with the new appropriation would now amount to over $85,000, is far in excess of an expenditure which the size and importance of Narragansett Pier would warrant. But this Chapter is in a position to state positively that the portico is not a necessity either for the appear-

ance of the post-office building or as a matter of practical utility.

"Under separate cover will be sent to you the December, 1916, issue of the "Journal of the American Institute of Architects" which contains the Institute's attitude towards Government architecture as expressed at the recent Minneapolis Convention.

"May we not have your support in the campaign which the American Institute of Architects is carrying on for saner methods in the expenditure of funds for Government buildings?"

From now on, we hope that every Chapter will take a similar interest in the proposals for new buildings within its limits and in the matter of additions, enlargements, and adornments. Such bills are introduced regularly and are frequently ill conceived to meet the real situation.

CLEVE MANOR, the fine old house in King George County, Virginia, which formed the subject of one of Mr. Baldwin's articles on the architecture of the Rappahannock Valley in the Journal for June, 1915, was burned on the 16th of January last. We are unable to report the extent of the destruction, but from all reports the house was so badly damaged as to preclude any hope of rebuilding. It seems distressing that these historic structures should be lost in this manner, yet adequate protection appears to be a matter of great difficulty, and ceaseless watchfulness the only measure of precaution which is possible, in view of the isolation of so many of these houses. Almost all of them have suffered by fire, at one time or another, and only the more fortunate have survived.

THE PURCHASE, by the Government, of Monticello, the home of Thomas Jefferson, was considered by the Committee on Public Buildings and Grounds of the House, during the present session of Congress. We are informed that its owner asked the price of $500,000 for the property, a sum which the Committee believed to be unjustifiable, and the report was therefore against making the purchase.

IN EDUCATIONAL CIRCLES, the recent announcement that the General Education Board, one of the philanthropies founded by Mr. Rockefeller, would provide the funds wherewith Teachers College of Columbia University might "establish and conduct a school for the purpose of constructive work in the reorganization of elementary and secondary education," has created what might be termed a mild sensation. According to the announcement, the proposed educational methods to be tried will be "better adapted to the needs of modern life," and will "frankly discard that theory of education known as 'formal discipline'." The teaching of Latin and Greek will be dropped in favor of more emphasis to be given to science, industry and the domestic arts. Speculation and criticism are both rife, but the answer will be determined by the trial itself.

COMMENTING UPON THE appointment of Mr. Charles Mulford Robinson as city-planning advisor to the city of Greensboro, N. C., the *Daily News* of that city looks forward in a manner which is not only encouraging but even cheering. It says:

"More than one man possessed of both intelligence and the desire to help along any community enterprise that is worth while has of late raised the question, 'What does Greensboro want with a city plan? The city is built now, and is it not forever too late?'

"Is the city in fact built? Greensboro has a population of approximately 30,000. In the year, let us say, 1942, will the population of Greensboro remain approximately 30,000? If we admit that it will, we may be wasting our time in sending for a city-planner; but if we think, as the Daily News thinks, that twenty-five years hence Greensboro will have a population of 100,000, then the city instead of being built, is less than one-third built; and the fact that the first third was built at haphazard is certainly no excuse for building the rest the same way.

. . . . .

"Greensboro is a live town, therefore a changing town. The value of getting an expert's advice is that by following it we may make every change a change for the better. It is probable that the adoption of a city plan would not do the town much good this year, nor next year; but in the course of ten years the improvement would be marked; and in the course of a generation the whole city would have felt its beneficial effects.

"The desperate anxiety to get the man here before the courthouse is built is due simply to the fact that the courthouse is expected to stand for at least fifty years. It is one of the few structures of the present city that will last long; therefore it is highly desirable that it be so constructed that it will be an ornament to Greensboro not only at present, but also half a century hence."

We congratulate the Greensboro *Daily News* upon its ideas of civic duty and upon the admirable manner in which it seized an opportunity to really serve the city it represents.

MR. GROSVENOR ATTERBURY calls our attention to a misconception of the connotation of the word "unit" as referred to in the last number of the Journal, by which we unwittingly made it appear that he advocated consideration of an increase in the size of the units as a solution of the present cost of small houses for workingmen. Actually, he had reference to the "unit" in relation to the proper application of the principles of standardization, wholesale production and machine manufacture in connection with the building of the small house. Reading the word in this light makes it clear that far from being in favor of the multi-family housing unit, he distinctly advocates the small individual house, even to the point of having its erection, by highly systematized methods, result in a considerable degree of monotony.

IN 1859, IT APPEARS that Governor Banks, of Massachusetts, recommended the purchase by the state of the John Hancock mansion, then standing on Beacon Hill, built in 1837, and once a familiar landmark to Bostonians. Yet in spite of all protests, this historic possession was allowed to go the way of so many others. Now Governor McCall advocates that it be rebuilt from the plans which are still in existence, and that it be used to revive the tradition of the Governor's mansion, as well as to complete the proper development of the State House grounds. The suggestion may well cause us to review the careless manner in which we have destroyed so much of our most precious heritage, but it scarcely seems possible that this particular example of short-sightedness can be corrected by reproducing a building which would bear no relation whatever to present modes of life. An ancient building, expressive of the life of another day, exhales, by its very presence, the charm of a ripened architectural beauty and calls forth a feeling of reverence in the heart of those who are not reverentially dead. But an imitation of something which had been thoughtlessly destroyed calls forth quite another feeling—one which needs to be replaced with reverence if we would justly appreciate our inheritance. Fortunately, the work of preservation is finding more and more sympathy, and Governor McCall's suggestion will give an impetus to many hopes and plans.

Regulating the Practice of Architecture as a Profession

SUGGESTIONS FOR A SECTION TO BE INCLUDED IN ALL FUTURE STATE LAWS OR TO BE ADDED TO ALL EXISTING LAWS FOR THE REGULATION OF THE PROFESSION OF ARCHITECTURE

By PETER B. WIGHT

I HAVE been requested by so many Chapters of the Institute and members of State Boards for Regulating the Practice of Architecture as a Profession, for assistance in formulating new laws or amending existing ones, since the publication of my articles in the Journal for October, November and December, that I deem it important to be more explicit in recommendations how to provide for what has for several years impressed me as the most important provision to be embodied in such enactments—that is, for not only eliminating from the profession, but for punishing those who may be found to be guilty of *dishonest practices* in the pursuit of their profession. In my last article I quoted from an address delivered two years ago in which I gave reasons for the necessity for so doing. I quoted from the code of professional practice of the Institute and of the Illinois Society of Architects. Many of the Chapters have adopted and published such codes. Nearly all of the state laws give power to boards of examiners to revoke licenses for "dishonest practices"—without defining what they may consist of—and the Appellate Court of Illinois, without ruling against such penalties being inflicted, has held that the words are plural and that the penalty can not be inflicted for *one* dishonest practice. That makes it necessary to amend such acts by definitions declaring that one dishonest practice is sufficient for revocation.

It is also important that as many as possible of dishonest practices known to be prevalent should be defined in the laws. To that end, I propose that an additional section be added as an amendment to all of such laws. No existing section should be amended, for by so doing court decisions sustaining the constitutionality of such laws might become thereby nugatory. I have therefore drawn up the following explanatory section, to which should be given such a heading as is customary to add to amendatory acts in the several states, and which should always be submitted to some competent lawyer before presentation to any state legislature or general assembly.

REGULATING THE PRACTICE OF ARCHITECTURE AS A PROFESSION

The following is suggested as a sample:

A BILL *for an Act to amend an act to provide for Licensing (or Registering) Architects and Regulating the Practice of Architecture as a profession, as adopted and in force ——— and amended by adding a section to be known as Section ———, as follows:*

Wherever the words "dishonest practice" or "dishonest practices" occur in this act the same is hereby defined to refer to one or more of such practices; and the following are hereby defined as among dishonest practices, for which the license of an architect may be revoked upon trial or investigation by the State Board, and are hereby declared to be unlawful, for the commission of which the holder of such license (or certificate of registration) may be punished by fine or imprisonment or both after due trial in any court of competent jurisdiction, which fine shall be not less than two hundred (200) dollars, nor more than five hundred (500) dollars, or imprisonment, upon failure to pay the fine, of not less than two nor more than six months, in the discretion of the Court.

1. *To be guilty of fraud or misrepresentation in obtaining a license (or certificate of registration).*

2. *To accept any commission or substantial service or favor from any contractor or anyone connected with the building trades, or from anyone furnishing materials in a building designed or supervised by the architect of the building in which the same are used.*

3. *To injure intentionally the fair reputation, prospects or business of another architect.*

4. *To attempt to supplant a fellow architect after definite steps have been taken toward his employment.*

5. *To conspire or attempt to conspire with any other person to violate the building or sanitary laws of any village, city, town, county or state, in which building is regulated by law.*

NOTE.—Since this article was received the Legislative Committee of the Architects of Indiana has formulated and had introduced in the General Assembly of that state a bill for the "Licensing of Architects and Regulating the Practice of Architecture," modeled after the Illinois law. It has added a section, the wording of which is almost exactly copied from that recommended by Mr. Wight as above and suggested in his article in December. This section defines "Dishonest Practices" as referring to one or more of such practices and specifically describes three of them as follows:

(*1*) "*To be guilty of fraud or misrepresentation in obtaining a license to practise architecture.*"

(*2*) *Exactly as recommended in the Journal and marked* (*2*)

and (*3*) *Exactly as given and numbered* (*5*) *in the Journal.*

The Committee of Architects in charge of the bill says: "It was thought by our legal counsel that the suggestion that it would be considered a misdemeanor for an architect to injure the reputation of another should be taken care of in an individual suit for damages rather than in the statute; also that a clause referring to an architect supplanting another who had taken steps for procuring a commission or executing it, is one which involves the ethics of the profession and could not be a specific, forceful claim in the statute."

The whole question of adding a new section of similar import to the Illinois law will be considered at a regular meeting of the Illinois Society of Architects to be held very soon, at which legal counsel will be consulted.

The Experiences of a Member of the Institute on the War Front of the Somme, in France

Mr. Charles Butler resigned as Secretary of the New York Chapter and went to Paris in June, 1915, to work with the American Relief Clearing-House in Paris. After spending some months in this field, he was asked by Dr. Alexis Carrel to make plans for a surgical hospital unit of 100 beds, to be placed in an advanced section of the war zone. Through difficulties over the admission of foreign nurses to the advanced zone, this hospital was not built, but the French war department then requested plans for a war hospital of 500 beds to be erected near Paris, and to serve as a model for other such hospitals. At Mr. Butler's request, M. Pellechet, a former comrade in the Beaux Arts was withdrawn from the front to assist in the preparation of the plans, and with the assistance of Dr. Dumont, a surgeon attached to the war department, the plans were prepared. Due to further difficulties the hospital was not erected, but the plans were used as a basis for many of the plans of other hospitals which, under the French military system, are made in the various twenty military districts into which France is divided.

During a lull in this work, Mr. Butler embarked with the Serbian Relief Expedition sent out by the American Relief Clearing-House, and spent the months of February and March, 1916, on a trip to Corfu, Athens and Corsica. By reason of the failure of the ship chartered for the purpose to arrive at Brindisi in time, the expedition was unable to accomplish its mission which was to remove the Serbian refugees from the coast of Albania, so the vessel was later used for transporting American Red Cross supplies from Athens to Corfu and Corsica.

On returning to Paris, Mr. Butler was asked to revise the plans for the permanent hospital near Paris, and it is now in process of erection. During the summer, Mr. Butler collected data on tuberculosis hospitals for submission to the war department, and he returned to America for a brief period in order to make further studies in this connection. After submitting this material upon his return to Paris, he intends to resume his practice in New York City. Some of his experiences are recited on the following page.—THE EDITOR.

Paris, November, 1916.

As we said good-bye to our friends of the staff of the —th Division, with whom Abbott and I had spent three days in the Somme, the General said to us: "You have seen us *au repos*, why don't you come back and visit us when we are *en secteur* next week?" A rapid examination of our *permis bleu* showed that it was good for two weeks more, and on receiving a positive assurance from all hands that we should not be in the way, we agreed to come back. Our friends were to go to the front in four days and stay there for the usual two weeks. So ten days later found me in Amiens, unluckily without Abbott who was under the weather. The General's car was waiting, with two soldiers on the front seat, the second man, as I soon discovered, being the cook, who had profited by the trip to fetch forage for the mess. Heading straight for the front, we passed through the region where our friends had been, out into the battlefield of July 1, well past the old German first- and second-line trenches. Finally, the car stopped—nowhere in particular—a few hundred yards from the ruins of a village. The cook gathered up my belongings and led the way across country toward a few hummocks, passing, alas, en route, the ever-present cemetery. The hummocks proved to be the headquarters of the Division, formerly, very evidently, a German headquarters and comprising various offices ten or twelve feet under ground, and three large sleeping-rooms at least thirty-five feet below ground-level. These last had gone unscathed through the French bombardment, but in one room were found the bodies of forty-five Germans killed by gas. I spent what remained of the afternoon looking over the very interesting arrangement of the headquarters and the excellent German construction, including a mitrailleuse turret in concrete and railroad iron. Of course, this place had been so far behind the German front lines that they had been free to make very permanent improvements, which were proving most satisfactory to the new tenants. The Germans had been especially lavish in their use of timber, which is comprehensible, as it was cut from French forests.

One of the very interesting sights is the great extent of the telephone service everywhere in the battlefield; this we were to realize more and more as we tramped over the plain in every direction and saw the miles of cables, not set up on posts, but lying on the ground, the newest type heavy enough to allow artillery to run over it without cutting it.

At dinner, the various members of the Staff came in from the inspection and office work—the dinner, like every meal I had, was most excellent, quite aside from the result of the cook's foraging in Amiens; incidently, the war bread at the front was better than that of Paris.

All of this time the cannonading was going on continually, especially to the north where the English lines lay. As we stepped out of our underground dining-room and started for our quarters across the plain the sight was inspiring and beautiful. Three quarters of the horizon was illuminated by the flash of shells, while, at intervals, the sky was lighted up by the flare of fusées. Part of the Staff were living temporarily a mile away across the plain and I had been assigned to them. The trip across fields, pitted with shell-holes, from two to ten or a dozen feet deep and covered everywhere with telephone wires, unexploded shells and grenades, was distinctly interesting. The Staff told with joy of the adventures of one of their number who had, according to his story, been lost on the plain two nights previously and after wandering for hours had given it up as a bad job and slept in a comfortable shell-crater.

Half-way home we crossed the great road, invisible in the dark, but very audible and filled with the continuous stream of ammunition wagons carrying shells to the artillery, for all this work is, of course, done at night. My quarters were formerly the dugout of a German surgeon, and though not very deep under ground—perhaps twelve feet—they were very comfortable and dry. I should have slept very well on my straw *paillasse* but for the absolutely uninterrupted cannonading—nothing that I had heard before bore any comparison to what went on that night; at no time could there have been more than two or three seconds of interval between the shells. The fact that the explosions came from all sides made me realize, better than anything else could, the actual physical advance made by the French and British lines in the Somme, for we were truly a point pushed forward into the enemy lines.

The shelling slowed down a little just before we started at daylight for the more advanced positions. After a hurried cup of coffee with Captain L——— we started through Herbecourt, once a village, but now in ruins. It is always better to get an early start; one has to return in broad daylight, and it is healthier to make the outward trip before the sun is up.

Shortly after leaving Herbecourt we struck one of the *boyaux* which lead toward the front and dropped into it for the remainder of the trip of about two miles, to a knoll in the west face of which lay the *poste de commandement* we planned to visit. The principal object of my trip was to consult with the officers on the subject of the things most urgently needed for the comfort and well-being of the fighting men, for my staff friends had felt that we could get our best information from the officers in direct command of the men in the line. At the *posle* in question we found Colonel L——— commanding a brigade, a soldier who, like most French officers, lives in the closest touch with his men and knows them and their wants. We discussed with him and his staff the various ways in which we could be of assistance and showed him the Boston oilskin poncho which I had brought as a sample. This appealed to him at once, for while the army has caught up with most of the needs of the men—boots, socks, and heavy underwear—the question of a waterproof protection for the man in the trench who must be out in all weathers has not yet been solved. The Colonel called in enlisted men to try the poncho and give their opinion of its practical value, and all agreed that it was the best thing they had seen. I should say, in passing, that my sample was taken from a Lafayette kit, for that wide-awake committee has recently added the poncho to its list of articles. Captain L——— took me on a mile through the *boyau* to visit an observatory, where we had a good view of the "promised land"—Péronne and Mont St.-Quentin. Then home for lunch, part of the way across country and part in the *boyau*, for the Germans were sending over occasional *obus fusants*, the type which explode in the air and rain fragments on the casual passerby. I began to appreciate the distinct advan-

General Deschamps in a Second Line Trench

General de Cugnac in Front of his Division Headquarters' Office and Dining-room

tage of my steel helmet, and when we smelt the queer, bitter-almond smell of the *obus lacrymogénes*, I was glad to feel that my gas-mask was handy.

In the afternoon I went for a walk, merely a sight-seeing tour with the Interpreter Captain who was not busy and volunteered to show me the battlefield of September 25 and what was left of Cléry. There was certainly not enough for any practical use, except in so far as brick-bats are good for road foundations. From this point we again saw Mont St.-Quentin, which Captain H——— did not at first recognize, so great was the change due to French shell-fire, since he had seen it a month before. Here again we used the *boyaux* until we found the going too bad and then, like everyone else, "took a chance." Coming home we crossed a part of the battlefield where territorial soldiers were at work, housecleaning, gathering up copper shell-cases, unexploded shells, hand-grenades, and other things. The German artillery, having, apparently, nothing better to do, though there were hundreds of French cannons needing their attention, began shelling these workers and incidently ourselves. We were quite satisfied to reach our headquarters, as each shell was a little closer than the preceding one, and 150 yards is as close as I care to be, even with a hemlet on. I did not insist on going over across the field to our quarters to wash up for dinner! When they finally let up, we learned that the only result of the shelling was one horse killed.

The next morning I again started, this time with Captain de M——— who wished to learn the condition of certain roads leading to the front trenches and the batteries which lay forward of us. We got away just as the dawn broke, my first real sensation being caused by a battery of 75's firing a salvo, as it seemed to me, from about ten feet behind me. As the sun rose, everything moving on the plain became visible to the enemy, and they at once opened up on half a dozen artillery wagons which has been delayed in getting away. Shell after shell came over, and though they spread out fanlike, it seemed as if some of them must be hit, but the German markmanship was not good enough, and to our joy, all got away safely. As we ourselves offered a pretty good mark, and as that kind of shooting still seemed more important to the enemy than trying to search out the hidden batteries, we again choose the muddy *boyau*.

Our path lay further to the south than the previous day and took us toward Barleux, still in German hands, which we saw at a distance of less than half a mile, not so badly wrecked as Cléry, but showing little but ruins. Again we talked with officers of all ranks and found all enthusiastic for ponchos. I noted the wearied look of the older men among the soldiers after a week *en premiére ligne* and realized how great was the strain and what it would mean to them if we could provide the means to keep them dry.

I was once more impressed with the affectionate relationship between the officers, from the General down, and their men. General D———, the Brigade Commander, seemed to me truly father to his men. He spoke enthusiastically of the fact that he had been able to install his headquarters within 600 yards of the front line so as to be in the closest touch with his brigade.

I was especially struck by the sight, at each *poste de commandement*, of the little local cemetery, barely fifty feet away, with its well-kept graves and their wood crosses. I regret that I could not have been at the front the following week, for I know what solemn ceremonies there were planned for All Saints Day at those little cemeteries along the battle-front, and I feel sure that with their affection and reverence for their dead comrades, the men found, even in that thankless place, the means to beautify their graves.

One of the most interesting of the interesting men I met on my trip was the Catholic Aumonier of the Division. Turned down at twenty for military service on account of heart disease, when war broke out he had insisted on being taken, and was now the picture of health and had won the Croix de Guerre and the Legion of Honor. I did not meet the Protestant Aumonier, but was told that he was an equally fine character and that he and his Catholic colleague were bosom friends and always working together; as my informant put it, "the 'Union Sacrée' certainly works here at the front."

Our tramp back led us through Flaucourt, another wreck, and becoming worse daily, for as we passed through, shells were falling at the other end, and beyond we found the Boches again busy at their favorite game of shelling territorials, totally neglecting the many French batteries

What impressed me most that day was the immense number of French batteries in that plain and their wonderful concealment. Though we crossed it twice and heard hundreds of guns firing and saw, of course, the flashes, I do not think that I actually saw more than four or five cannons. It somehow seemed as if the German gunners had given up the job of finding the hiding-places of the batteries and taken to the more congenial job of "territorial chasing."

They wasted a great many shells, but so far as we could see, did not hit a man. We kept on to our diggings, and I got my first wash in forty-eight hours. After a farewell lunch, I said good-bye to my delightful hosts, more than ever impressed with the ability and charm of the French officers and better able to realize why the French soldier has accomplished such wonders under such leaders.

The huge amount of work being carried on at the front staggers the imagination. I had seen the Vosges front and a bit of the Verdun region, but neither of these, as I saw it, is to be compared to the Somme in its extent and its variety.

When we are told that such and such a thing should be supplied to the troops by the army and not by our Committee, my only answer is that since I have seen what must be supplied I can understand perfectly that some wants have to be left to private initiative.

Already, although it was only the end of October, a season which to us in America suggests glorious weather, on the Somme the unceasing winter rain of northern France had begun, and the struggle with mud and wet was only second to the fight against the invaders. It is only too easy for one who has seen the country to imagine what the conditions are now, and to realize what a boon the poncho would be to the man in the first-line trench who must be out in all weather without fire and without shelter.

May I therefore urge those who wish to be of real help to the fighting men of France and who would rather keep a man in good health than cure him when he is ill, to contribute liberally to the Poncho Fund of the War Relief Clearing House, 40 Wall Street, New York City, making checks payable to Thomas W. Lamont, Treasurer. They can rest assured that no other gifts will render greater service or be more thoroughly appreciated.

Since writing the above I learn that an urgent appeal for ponchos has come to the Clearing House in Paris from General Nivelle, for the Verdun troops, showing that in another quarter the poncho has been discovered and its worth appreciated.

Soldiers Cooking Dinner in Flaucourt

Medical Headquarters of a Division

Architectural Draughtsmen

IX. DANIEL URRABIETA VIERGE

IN proportion to his rank among the workers in his field, it would seem that very little has been written about Vierge. Some graceful eulogy, some passionate appreciations of his genius, with a few restricted and vague details of the artist's personality and story—this is all that we have to fall back upon for a closer acquaintance with him.

Strange—when few figures in his province have inspired such ardour of admiration, and few have so deserved it! If—as in the present case—most of those who have wished to approach him as a theme have suddenly felt tongue-tied, with a sense of how far their enthusiasm outran their powers of expression, it is easier to understand.

To Mr. Pennell, who perhaps is not so readily depressed, we owe the frankest, most spontaneous if somewhat pugnacious tributes that have been offered to this amazing draughtsman. Others may have handled their subject with more delicate, impersonal touch, with equally discriminating analysis, but surely with no truer impulse of hero-worship than inspired him who was of the first in this country to do homage to Daniel Vierge. After that early time it came to pass that the latter's name was a kind of countersign among the Illuminated in the artist-world. Many a humble student has doubtless hugged to his heart the well-founded assurance that no one who knows and prizes his Vierge is quite of the common herd.

To a quaint "professor," long since drifted from Boston's horizon back to his native Italian shores, many dwellers in that city owed their introduction to the great draughtsman. Never could one forget the reverence, the solemn exaltation, the air of giving the accolade, with which that professor placed before his pupils a copy of "Pablo de Ségovie"!

There has been but one Vierge. Evidently born to illustrate the *picaresque* romance, no one else unless Fortuny—yet scarcely Fortuny—could so render the unspeakable dash and swagger of these vivid figures of Andalusia and Castile—this marvelous panorama of students in flaunting draperies and flapping hats, of priests, hidalgoes, beggars, gitanos, swashbucklers in rags—this black-and-white necromancy that has colour; the shadows that quiver, the lights that sparkle, the shapes that live, move and have their Spanish being in the very atmosphere of Spain! A certain lightness and gayety, due no doubt to the admixture of Gallic blood with the more serious, dignified quality of the Spanish strain, are characteristic of the artist's work. With what *brio*, what joyous abandon he peoples his stage! What delightful and delicate settings, what fairy scene-painting he lavishes on it! A special vocabulary, indeed, does one need to describe it. His wizard's pen transmutes the plainest material into enchanting fabric for his own purposes. As an example, may it be permitted to quote Mr. Cortissoz, referring to Vierge's use of the

From "Pablo de Ségovie"

old Roman aqueduct at Segovia in one of his illustrations? "Who else could have introduced that cyclopean structure into a design, the picturesqueness of which is so light in hand, with such aptness and such skill?" Who, indeed, would have thought of trying it? Yet there it is, like lacework, its mammoth size just indicated, a superb background for the two spirited advancing figures. So throughout all his work; nothing is disdained, but with happy assurance, the golden touch transforms heaviness into grace, squalor into riches, grimness into beauty.

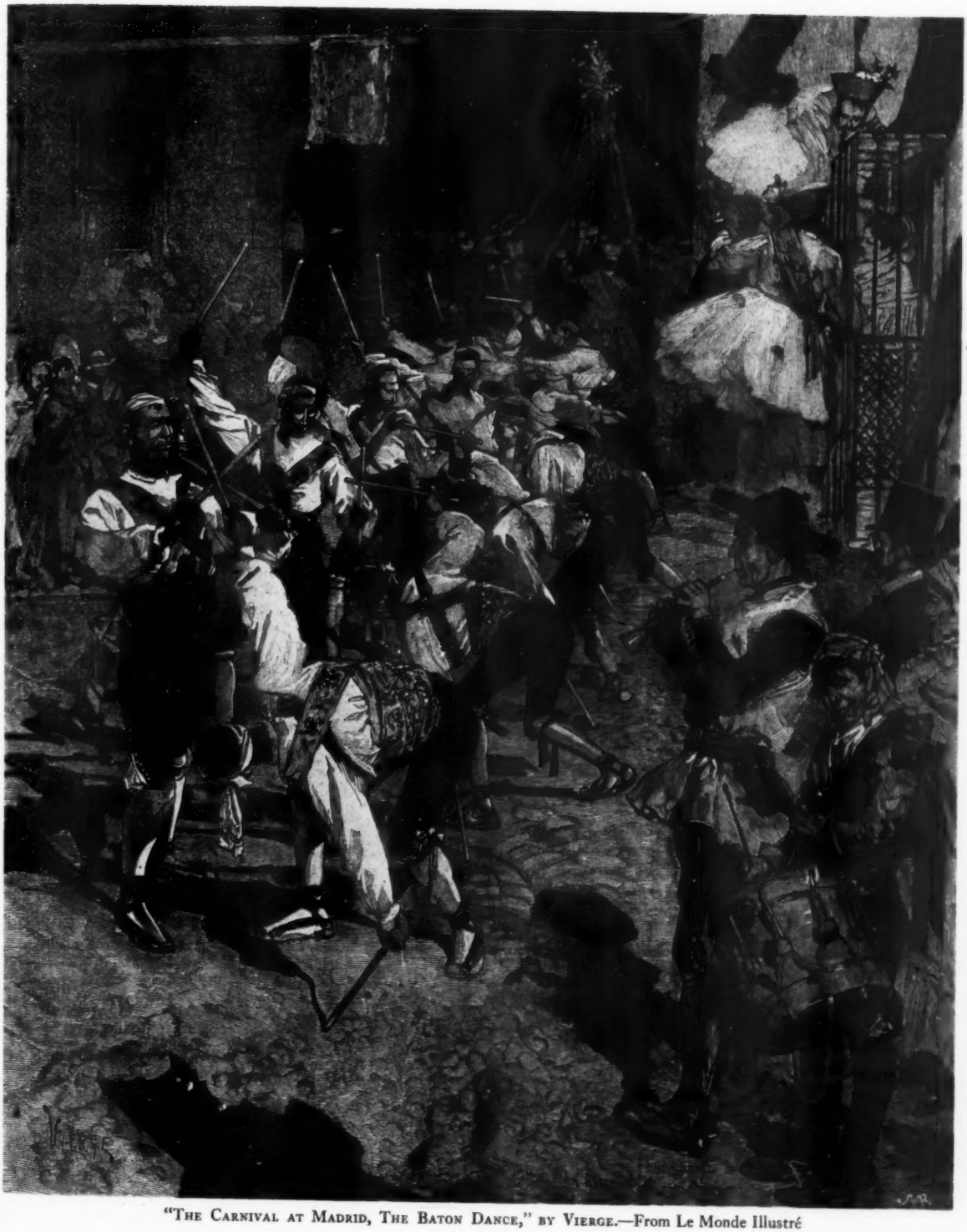
Many think of him as illustrator rather than as draughtsman in the ordinary sense. While it is plain that Vierge's dominant impulse was toward figure-drawing, his knowledge of anatomy being supreme and his use of the architectural note chiefly as background for the human element, yet his treatment of architectural features was so exquisite as to be the ideal and despair of professional draughtsmen and illustrators to this day. Although it is not true that many of them approach him, even within hailing distance, still it is always easy to recognize his disciples, and their number fully bears out the statement of his chief biographer that he "completely revolutionized the art of illustration and created a new school of illustrators, the influence of which is now felt all over the world."

Daniel Urrabieta Vierge was born in 1851, at Madrid. One is not surprised to learn, from the modest sketch of his life prepared by him for a publisher in 1892, that his drawing was his "only amusement as a child"—beginning at the age of three. As rarely happens with infant phenomena, his talent kept up the pace, and it is more noteworthy that his first honorable mention was received at the age of fourteen, at the School of Fine Arts, Madrid. At sixteen, having won his "diplôme d'honneur," the young Urrabieta embarked on his career by illustrating the "Madrid la nuit" of Eusebio Blasco, and another work called "Les Mystères de Rome et du Globe."

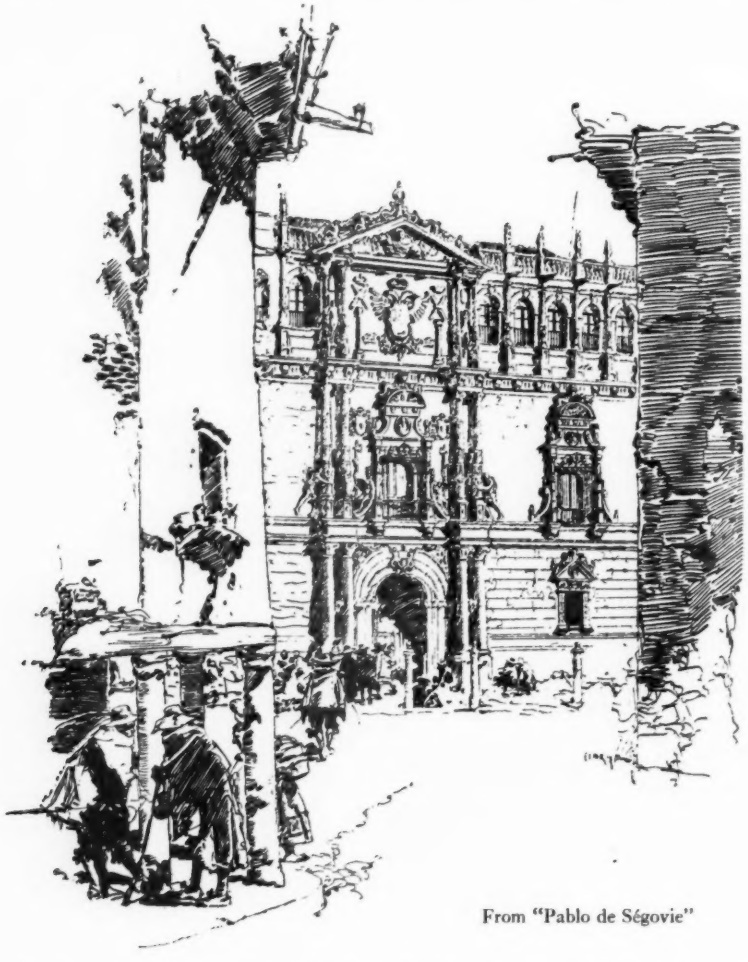
His ambition then was to become a painter. With this in view he arrived at Paris, natural goal for that blended Gallic and Castilian spirit which was to give his slightest work its unmistakable stamp forever after. In Paris, nevertheless, the "Urrabieta" drops out, and from that time on—adopting his mother's name and becoming French among Frenchmen—he is known as Vierge *tout simplement.*

That year—1870—saw the outbreak of the Franco-Prussian war. Young Vierge was compelled to change his program. He was thankfully appropriated by the "*Monde Illustré*" ("*accaparé*," as himself puts it), and was with

From "Pablo de Ségovie"



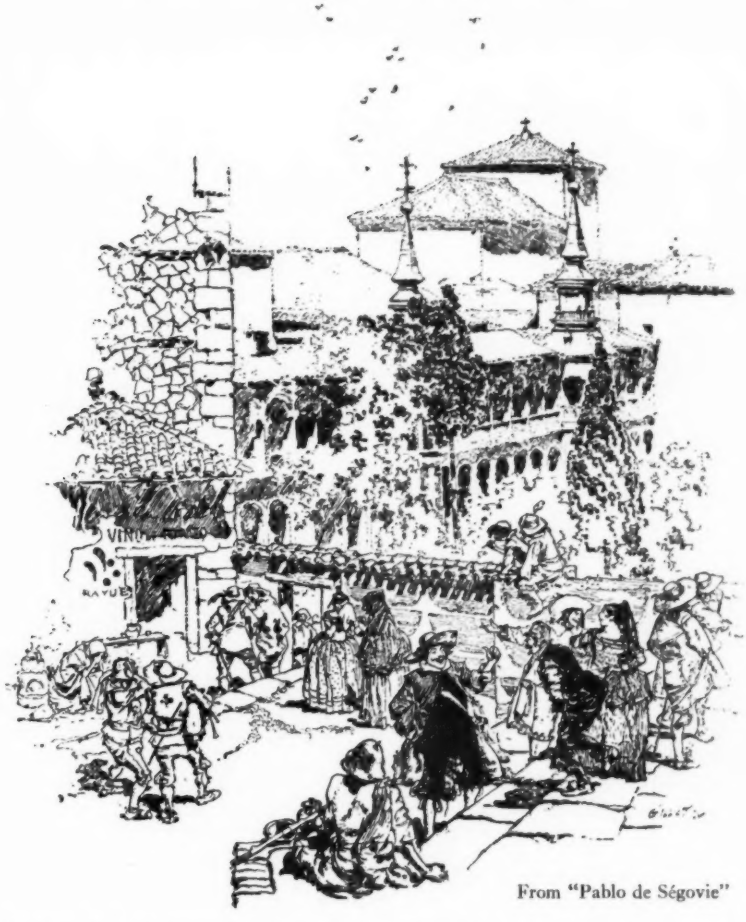
"The Carnival at Madrid, The Baton Dance," by Vierge.—From Le Monde Illustré



From "Pablo de Ségovie"

them as staff artist for years—properly valued, no doubt, as shown by the editorial text of those days.

In spite of his thwarted plans, life must have been very full and very smiling to the young Spaniard, just coming of age, with the great field of his art stretching before him; with a sense of power, and of utter revelry in that power, such as can never have been more frankly revealed in the work of any artist in any age. It is pleasant to picture him as Paris knew him in that early time—a striking apparition, with the splendid head, always picturesque, as seen in his own later sketch, tumbled of hair, fiery and deep of eye, strong of feature. There is an entertaining account of a great charity festival, in a "*Monde Illustré*" of 1879, which offers a flashing glimpse of that romantic young figure. It was a Spanish fete in the old Hippodrome, given by the Paris press for the benefit of the flood-sufferers of Murcia. The *tienda* or pavilion of the "*Monde Illustré*" appears to have been a gorgeous affair, designed and decorated in Spanish Renaissance style, "*avec une maestria et une originalité remarquables*," by M. Vierge and somebody named Scott—a fellow-artist who can hardly have had much claim to immortality unless through the association. So, "MM. Vierge et Scott," with Spanish friends, in native costumes of Galicia, Murcia, Salamanca, etc., assisted gaily in the grand parade, winding up with a "*jota gigantesque!*" The illustration of the parade by MM. Vierge and Scott was the great feature of the next "*Monde*



From "Pablo de Ségovie"

Illustré," coarsely handled in reproduction, but stamped with the undoubted hallmark of its draughtsman. Among the pictorial magazine work of that period, embryonic and rough-finished all, the art of Daniel Vierge stands out like a flame wherever found—"a cresset in a dark night!"

But his industry was not confined to the pages of magazines in these days. "At the same epoch" (to translate from his own writing) "I illustrated a quantity of books, among others 'The Toilers of the Sea,' 'The Terrible Year,' 'Our Lady of Paris,' and others written by Victor Hugo; 'Mosaic,' 'The Family Museum,' 'The Pictorial Magazine,' 'The Great Knave' of Quevedo, 'Tales' by Edgar Poe; also 'The History of France and the Revolution,' by Michelet, and a number of other works." What riches! "The Great Knave" (El Gran Tacaño) is the book—the unique book—known to us as "Pablo de Ségovie."

The first edition of "Pablo," issued in 1882, remains the choice one, not to be approached by any later ones, despite the "*lacune*" to which M. Bonhoure, its publisher, simply but feelingly refers.

For now comes the tragedy—regarding which Vierge himself is silent, with the silence of the stoic, or the philosopher whose will is stronger than fate. In place of the brilliant young being, so gay of heart and so busy of hand, there is revealed to us a dumb, stricken figure, sitting in the abyss of shadow into which it has been flung, but toiling with an immense, unconquerable patience to retrieve something from its wreck, to regain something of its lost cunning—at any rate, to make the most of such fragmentary power as remains. Again

"The Fètes of Saint Jacques de Compostelle." Drawn by Vierge, photographed on wood by Montalti, and engraved by Lepère. From Le Monde Illustré

there is no vocabulary to draw upon, to point the tragic significance of this calamity.

It was many years before Vierge emerged at length fully into the light, having schooled his left hand to hold and use the pen which its wonderful mate had let fall. His old friend the "*Monde Illustré*" again received his work, with acclamation. Little by little he settled again into harness. A new edition of "Pablo" appeared, with twenty new illustrations to supply the "*lacune*." In 1894 the series of illustrations for "Don Quixote"—262 of them! —which was to be to him his crowning work, the great compensation for his blighted years, was begun, and filled the decade left to him with "hard but happy labour," giving to the world, as a writer gracefully says, "the perfect interpretation of one Spanish master by another."

We are grateful for this final chapter in the maimed, too-short life. Yet, to most of us, "Pablo" will remain the unrivaled as it was the first great success of the young pen. The sunlight that gilds the Segovian streets is the sunlight of youth; the dash and *fougue* of the figures that people them are the essence of youth, the mysterious, precious something that flits away with the flitting of the years. And the original edition—the Bonhoure edition—enriched by these charming and daring *tours de force* in pen and ink, these delicious vignettes, even by the "*lacune*" that saddens the closing pages like a silence after merry speech, continues the chosen edition, of which we may say heartily after Mr. Pennell that "some day it will be quite as highly prized as the most precious Caxton."

Later editions, one in English, large and elaborate, are far less desirable; the drawings lack the crispness and richness of the original

plates, owing to the difference in the processes employed. And what bibliophile can tolerate an English setting for these exotic gems of blended France and Spain?

Mr. Pennell has lamented somewhat bitterly that as a mere illustrator, Vierge could not have hoped for a gallery devoted to the exposition of his work. However, in one instance at least, that honour was his, or approximately so. There was a gallery in the Fine Arts Building, at the Paris Exposition of 1889, practically given over to the display of Vierge's drawings, and a splendid and greatly admired display it was, and followed by the conferring of a gold medal upon him. A month later he was made "*Chevalier de la Légion d'Honneur*," a distinction doubtless very grateful to his simple, responsive spirit, and all the more so for the frightful ordeal through which he had passed.

From "Pablo de Ségovie"

Pleasant glimpses of him in the last years of his life have been given us by friends who visited him in his quiet home at Boulogne-sur-Seine. Always cheerful, they said, often singing, never idle, but surrounded by the implements of his beloved work; with a background of summer garden, peopled by fond members of

his family, and with the memory of his own cordial words to bestow on parting guests—what better things could his most fervent disciples have wished for him? It seems that he wished so little for himself, so pathetically little—only the power to work at that which was his happiness, and doubtless also the appreciation of "those who know."

Perhaps no comment on his life-work might have been more acceptable to him than this plain, unexcited estimate by Mr. Cortissoz: "In the sphere of pen draughtsmanship he is what Velasquez is in the sphere of painting, or Rembrandt in the sphere of etching." And perhaps no fitter word can be said; nor for us, having the legacy of Vierge's unapproachable handiwork, is any further word needed.

ANNIE L. M. KIMBALL.

Remaking Belgium

WHILE in London, two or three months ago, the chairman of the Committee on Town-Planning of the Institute found that the English town-planners and architects had gathered together in London all of the Belgian refugee architects that they could discover in England, Holland, and France. The English town-planners had undertaken this because they wanted to care for the Belgian architects during their period of expatriation, and also to help them to learn as much as they could about the modern principles of scientific town-planning. These Belgian architects are going to be the ones on whom Belgium will have to depend after the war, for the rebuilding of her cities, towns, and villages. If these architects could only enjoy the opportunity now to study the up-to-date principles of town-planning, as practised in England, they will be in a far better position to rebuild Belgium, economically and wisely.

Two-Tone Poster, 30 x 40 Inches, Drawn by Frank Brangwyn to Aid the Belgian Architects in England

Those in charge of this splendid work, headed by Ewart G. Culpin, secretary of the Garden Cities and Town Planning Association of Great Britain at 3 Gray's Inn Place, London, W. C., prevailed on Mr. Frank Brangwyn to draw for them this poster. It is in buff, brown, and black, and Mr. Brangwyn has given this to the cause, so that the price of $5, which has been set for it, is almost all net gain for the Belgian architects. The chairman of the Committee on Town-Planning of the American Institute of Architects will be glad to make arrangements for securing copies of the original for all who want them.

GEO. B. FORD

Beaux-Arts Institute of Design

Official Notification of Awards—Judgments, December 27, 1916

Class "A," Second Projet

Jury of Award.—F. A. Godley, E. V. Meeks, H. W. Corbett, G. A. Licht, F. C. Hirons, T. Hastings, H. Hornbostel, L. Warren, D. D. Ellington, H. Sedgwick, W. Emerson, H. L. Shay.

Program.—A Moving Picture Plant. *Drawings submitted, 92.*

Awards.—First Medals, G. M. D. Lewis, F. A. Chapman, P. J. Weber, L. C. Licht, University of Pennsylvania.

Second Medals, F. Bigelow, Atelier Corbett, New York City; M. L. Crandell, D. M. Bowes, R. H. McNaughton, Cornell University; R. Kilborn, Columbia University; R. W. Blaine, L. Suckert, J. R. Tanner, E. F. Giberson, University of Pennsylvania.

Class "A," Second Esquisse-Esquisse
Class "B," Second Esquisse-Esquisse

Jury of Award.—M. Flagg, 2d, W. A. Boring, W. Lamb, R. H. Dana, Jr., A. Ware, G. H. Bickley; also served for Class "A" and "B" Archæology, Second Projets and Measured Drawings.

Program.—Class "A," A Motordrome.
Class "B," A Garden Gate.

Drawings submitted.—Class "A," 35; Class "B," 51.

Awards.—Class "A," Third Medals, D. W. Carlson, J. J. Perrault, J. Hudnut, Columbia University.

Mentions, C. M. Snyder, Syracuse University; P. J. Weber, University of Pennsylvania.

Class "B," First Mentions, W. J. Richards, Carnegie Institute of Technology; C. H. Bruegger, Atelier St. Louis.

Mentions, M. A. Higgins, Catholic University, Washington, D. C.; R. A. Lockwood, P. R. Williams, Los Angeles Architectural Club.

Class "A" and "B" Archæology, Second Projet

Program.—A Chapel. *Drawings submitted, 26.*

Awards.—Third Medals, H. Strazzabosco, Atelier Hirons, New York City; A. R. Brandner, Atelier Rebori, Chicago; C. H. Bruegger, Atelier St. Louis.

Class "A" and "B" Archæology, Second Measured Drawings

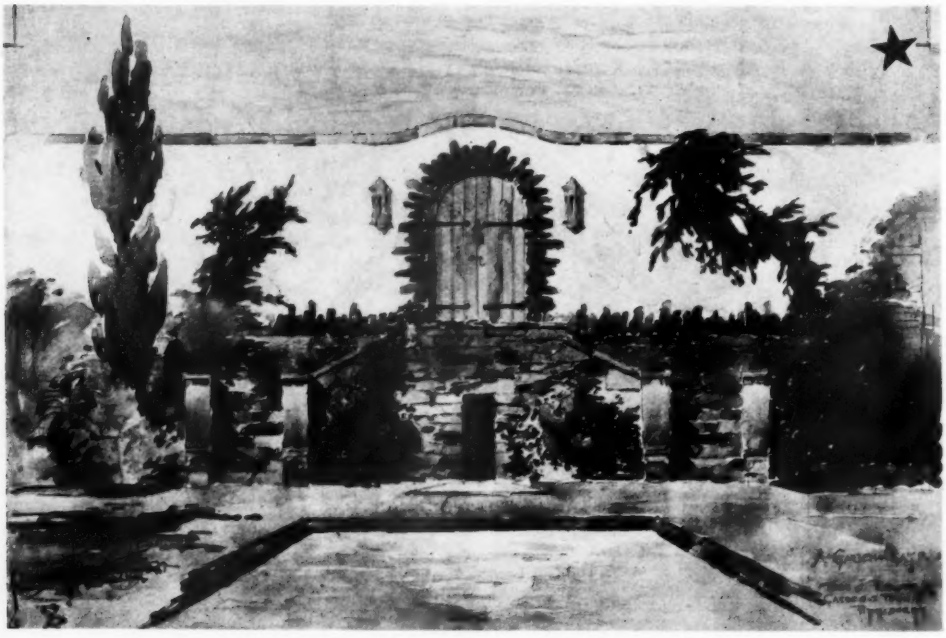
Drawings submitted, 6.

Awards.—Third Medals, C. H. Boyd, H. W. Smith, Carnegie Institute of Technology; H. J. Burke, Columbia University.

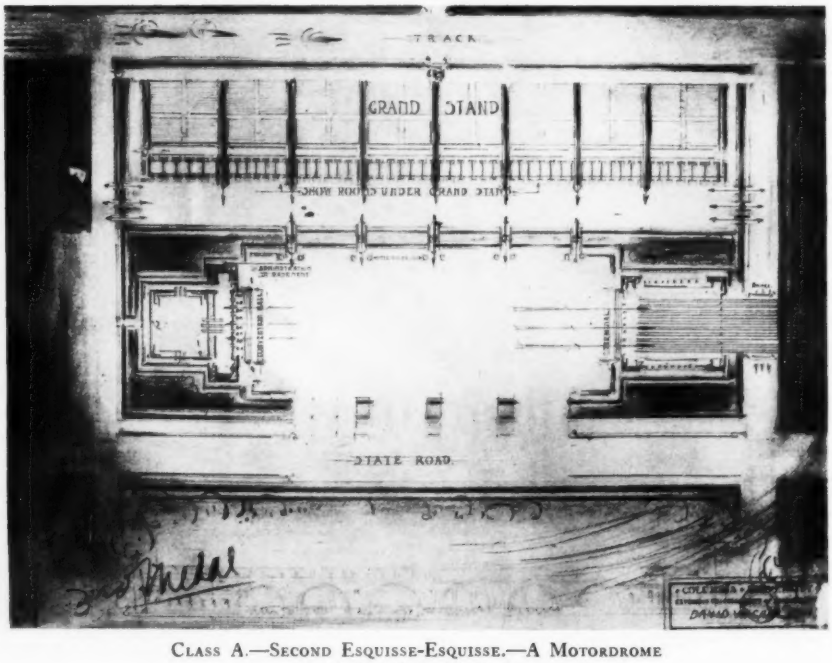
Mentions, G. L. Kaufman, C. F. Roesch, Jr., H. R. Lee, Columbia University.

CLASS A AND B.—ARCHÆOLOGY
Third Medal, C. H. Boyd

CLASS A AND B.—ARCHÆOLOGY
Third Medal, H. Strazzabosco



CLASS B.—SECOND ESQUISSE-ESQUISSE.—A GARDEN GATE
First Mention, W. J. Richards



CLASS A.—SECOND ESQUISSE-ESQUISSE.—A MOTORDROME
Third Medal, D. W. Carlson

Institute Business

Meeting of the Board of Directors

JANUARY 18 AND 19, 1917, AT THE OCTAGON, WASHINGTON, D. C.

Present: President Mauran, First Vice-President LaFarge, Second Vice-President Willcox, Secretary Parker, Treasurer Waid, Directors Favrot, Lubschez, Sellers, Faville, Fenner, Kimball, Jensen and Brown, and the Executive Secretary.

The National Forest Reserve on the Potomac

As the Institute is to be represented at the International Forestry Conference by Mr. William M. Ellicott of the Committee on Preservation of Historic Monuments and Scenic Beauties, the following resolution, for transmission to the Conference through Mr. Ellicott, was formally adopted:

Whereas, The American Institute of Architects in Convention assembled has ratified and approved the plan to create a National Forest Reserve adjacent to the city of Washington in Prince George's County, Maryland, and extending along both banks of the Potomac River, to comprise one hundred thousand acres, more or less, for the purpose of restoring a vast forest area which, through neglect, has become unproductive and unsightly and through the practical destruction of its original forests has gradually injured the climatic condition of the national Capital; and

Whereas, The rehabilitation of this tract by the United States Government, as a demonstration of forestry and for other reasons, must have a marked influence upon the development of forest conservation in the various states of the Union and upon cities which may have similar opportunities;

Be it resolved, That the Directors of the American Institute of Architects at their regular meeting held on January 18, 1917, and through its accredited representative, Mr. William M. Ellicott, hereby respectfully and urgently call the attention of the International Forestry Conference to this most important project for the reclamation of waste lands adjacent to the national Capital and invite its active coöperation in an endeavor to influence Congress to provide for the examination, survey and purchase of such tracts as may be found to be available and desirable for the purposes named.

Remission of Initiation Fee

It was resolved that during 1917, the initiation fee be remitted to all applicants for Institute membership who were Chapter Members at the time of the 50th Convention.

Application of Unanimous Endorsement

It was resolved that the principle of unanimous endorsement shall apply only to those who were Chapter members prior to the date of the Fiftieth Convention.

Budget Limited to 1917

The change in the Convention date was considered as well as the fact that the activities of 1918 would be well under way before the next Convention occurred and new officers were elected, and it was resolved that the Budget be framed on the basis of the calendar year 1917, with the expectation that a new Budget for 1918 would be adopted in January of that year.

The Quantity System

At the December meeting it was agreed that the President should appoint a committee to follow the operation of the quantity system on a specific piece of work, with the suggestion that a country residence costing about $125,000 would be an appropriate example.

Such a residence has very kindly been offered for a study of the workings of the quantity system, and it was agreed that a special committee to follow this work be appointed by the President; an account will later appear in the Journal.

Executive Committee

The Executive Committee, to hold office until 15 days after the Convention of 1918, was appointed as follows:

Burt L. Fenner	New York
D. Everett Waid	New York
Elmer C. Jensen	Chicago
Wm. Stanley Parker, *ex-officio*	Boston
John Lawrence Mauran, *ex-officio*	St. Louis

Judiciary Committee

The Judiciary Committee was appointed, as follows:

C. Grant LaFarge, *Chairman*	New York
Charles A. Coolidge	Boston
W. R. B. Willcox	Seattle

and it was directed that the Committee be governed by the instructions contained in A. I. A. Document 110.

Bill Creating a Building Commission

Mr. Whitaker spoke of his conferences with members of Congress in respect to a bill for the creation of a commission to report on the public-building methods of the Government, and said they had agreed that the personnel of the Commission ought to include no Congressional or Departmental representative; that it should include by definite reference one engineer member, one architect member, the rest of the personnel to be clearly defined under a high standard for all members; that the commission should be designated as a temporary one; that the minimum of time should be two years after the date of appointment within which to report to Congress, and that the members of the commission should receive no salaries, but that money should be provided in the bill for necessary expenses. Mr. Whitaker submitted a draft of the bill and the Board gave approval to its general principles.

Resolutions to Mr. W. R. Irby

Mr. Favrot reported that, in accordance with the resolutions adopted at the December Board meeting, he had submitted, on behalf of the Institute, an expression of its appreciation to Mr. W. R. Irby, of New Orleans, for his presentation to the Tulane Educational Fund of the old French Opera House.

The New Portrait of Past-President Post

The President reported that a portrait of Mr. George B. Post had been repainted by Mr. Blashfield and sent to the Octagon to replace the portrait now there.

It was resolved that the Board express its thanks to Mr. William S. Post and to Mr. E. H. Blashfield for their generous action in replacing the old portrait with a new one.

Portrait of Past-President Pond

The President read a letter from Mr. Irving K. Pond, transmitting Mr. Clarkson's portrait of Mr. Pond, which is to become the property of the Institute under certain conditions incorporated in a formal letter.

It was resolved that the Board express its deep appreciation to Mr. Clarkson and Mr. Pond for this admirable portrait, and that steps be taken to place the conditions of gift on the back of the portrait in such manner as will insure their observance in the future.

Committee on Chapters

The personnel of the Committee on Chapters is the same as in 1916, the Committee having been continued by the Convention, with the addition of Mr. J. A. Miller to represent the Alabama Chapter.

Revised Constitution and By-Laws.

The general instructions to the Committee were that it be charged with the preparation of uniform Chapter Constitution and By-Laws, which, if possible, should be submitted in draft form to the next meeting of the Executive Committee.

It was agreed that the Secretary should advise all Chapters of the Committee's work on these documents, suggesting that they delay all action until the standard forms are ready.

The Secretary presented, in type, the draft of a new edition of the Constitution and By-Laws as amended at the Fiftieth Convention. This was based on the drafts approved at the Convention and received from Mr. Perkins, Chairman of the Committee on Chapters, with minor corrections.

Full consideration was given to the documents for matters of substance, and it was resolved that the new documents be issued to all Institute members, after approval by the Secretary and Mr. Perkins.

Standard Form of Application for Associateship.

The Secretary submitted proof of a standard form of application for Associateship based on the amendments to the Constitution and By-Laws made at the Fiftieth Convention.

The accompanying suggestions from Mr. Perkins were carefully considered and it was resolved that the amendments as to form and substance recommended by Mr. Perkins be accepted in general, and the document be referred to the Secretary and Mr. Perkins for final approval and issuance to the Chapters at the earliest practicable date.

Form of Application for Institute Membership.

The Secretary presented an amended form of application for Institute membership corrected to agree with the Constitution and By-Laws as amended at the Fiftieth Convention. A letter of January 16 from Mr. Perkins was read, and the form of application was left to the Secretary and Mr. Perkins for final approval and issuance.

Mr. Parker said that in transmitting the two new application forms he hoped to send a letter to Chapter secretaries explaining the principal changes which have been made, and also outlining the method of unanimous endorsement prescribed at the December Board meeting, as there seems to be some misconception on this point.

Convention of 1918

The President called attention to the fact that the Fiftieth Convention had left with the incoming Board of Directors the power to determine the time and place for the 1918 Convention, and at the same time had fixed the terms of office of all officers and committees for 1917, to be continued until fifteen days after the adjournment of the Fifty-first Convention.

It was resolved that the next Convention be held in April, 1918, in the city of Washington.

Counsel Appointed

Mr. Louis B. Runk, of Philadelphia, was appointed Counsel for the Board of Directors for the year 1917 and until fifteen days after the Convention of 1918.

Recorder at Convention

The President spoke of the admirable work done by Mr. Levi at the Convention and it was agreed that his name should appear in the Annuary as Convention Recorder, and that hereafter the President appoint a Convention Recorder to perform the duties so ably carried out by Mr. Levi at the Fiftieth Convention.

Expression of Appreciation to Mr. Lacey

The Board accepted with regret the resignation of Mr. Edward A. Lacey, who has served the Institute both loyally and well in many capacities during the last eighteen years, and it was resolved that, for this continued service, rendered without stint and in a whole-hearted manner, the Board of Directors hereby expresses its full recognition and sincere appreciation, and extends to Mr. Lacey the very best wishes of the Board and the Institute for the fullest measure of good health and happiness in his voluntary retirement from active work.

Assignment of Chapters to Board Members

The President referred to the custom initiated in 1916 of assigning the Chapters on a geographical basis to various members of the Board, for the purpose of establishing an informal relationship for mutual help and counsel between Directors and the Chapters.

The assignments established in 1916 were continued with the following re-assignments to new Members of the Board:

To Mr. Faville.—The San Francisco and the Southern California Chapters.

To Mr. Fenner.—The Philadelphia, Cincinnati, Virginia, Baltimore, and the Washington, D. C., Chapters.

Conference of Smaller Chapters at Convention

The President read a letter of January 5 from Mr. Robert D. Kohn in which he suggested that there is some dissatisfaction entertained by delegates who come to the

Convention from the smaller Chapters because they do not have an opportunity, under the usual program, to exchange ideas and discuss mutual problems.

It was suggested that a special session of the Convention be devoted to these purposes, and that the subject be brought up for consideration prior to the next Convention.

Method of Handling Public Work in Various States

As suggested at the December meeting, Mr. Favrot presented a most complete report under date of December 1, 1916, which summarized his investigation through extensive correspondence of the present method of dealing with public work in the various states.

His suggestion was that the Institute should make its recommendations of a general nature which could be made available to states or municipalities engaging in solving this important problem.

Mr. Favrot was appointed chairman of a committee to act on this report, the committee to be appointed by the President on the recommendation of Mr. Favrot.

Amendments to the Schedule of Charges

The Fiftieth Convention authorized the Board of Directors to change the language of the Schedule of Charges to the end that, without amending its fundamental principles, its meaning may be made more clear. Tentative amendments were previously considered by the Executive Committee at the October meeting and made available to the Committee on Contracts and Specifications. Since the Convention Mr. Day had prepared an amended Schedule which was submitted and discussed.

The draft was left with the President, Secretary, and Mr. Day for final approval and issuance.

The Minnesota Chapter Plan for Small Competitions

Mr. Brown presented some suggestions from a special Competition Committee of the Minnesota Chapter on a Subsidiary Circular of Advice applying to small problems of a local nature.

He said the Chapter desired to have the opinion of the Board on the idea, and believed that if it were found of value to other Chapters, the Committee on Competitions might issue a subsidiary document of this kind.

It was resolved that the Circular be referred to the Committee on Competitions with a statement that it meets with the general approval of the Board which would be glad to have the comment of the Committee on Competitions before taking further action.

Definition of Advertising

It was resolved that Mr. Kimball and Mr. John Galen Howard be appointed as a special committee to report to the Board upon a definition of "advertising" with recommendations as to the attitude the Institute should take.

Committees for 1917

Due to the delays in acceptance of appointment, the full list of committees will be published in the March number of the Journal.

News Notes

The Proposed Abandonment of the Group Plan for the Washington State Capitol Buildings

Some years ago the State Capitol Commission (Washington state) instituted a competition for a group plan, in response to which thirty-one firms of architects submitted plans. The architect was selected, the group plans adopted, and a Temple of Justice constructed, as far as possible with the funds then in hand. Recently, we are informed that the present State Capitol Commission proposes to abandon the group plan and to proceed along new lines. The Washington State Chapter have protested vigorously at this seemingly unwarranted action, and have very properly urged that if a capitol building is to be constructed, it should be in accordance with the original group plan, and the architect selected only after a competition which will insure a result commensurate with so great an undertaking.

Evidently the nation's capital is not the only place where architectural bungling makes for a conglomerate of political tinkering.

New York State Association Meeting

On February 15, the New York State Association will hold a meeting at Syracuse, under the auspices of the Central New York Chapter. All architects in northern New York state, whether members of the Institute or of a Chapter, or unaffiliated with either, will be asked to attend this meeting and participate in the discussion of architectural problems affecting practice in the state of New York.

Obituary

Henry J. Meier

Elected to the Institute as a Fellow in 1889
Died at Detroit, Michigan, January 25, 1917

Mr. Meier's death occurred after a brief illness, and perhaps no better record of his life is possible than the simple one which was written for us by Mr. John M. Donaldson, his partner of thirty-seven years:

"His high ideals and fine character were an inspiration to all who knew him and his distinguished ability and integrity were a never-failing source of strength and assurance to those with whom he labored and to those whom he served.

"In his death the profession of architecture and the city of Detroit have lost an architect of real accomplishment, ability and distinction, and a man of the finest ideals and character.

"In the varied relations of a long and active life he measured up squarely to the best standards of true manhood.

"With vision, courage, honesty, tenderness and constancy he met serenely life's trials and the end of this mortal life."

Structural Service Department

D. Knickerbacker Boyd, *Associate Editor*

In connection with professional societies and organized bodies working toward the improvement of building materials and methods, and the following Committee of the Institute:

CONTRACTS AND SPECIFICATIONS, BASIC BUILDING CODE, AND FIRE-PREVENTION,
of which the personnel for 1917 will appear next month

MATERIALS AND METHODS

Thomas Nolan, *Chairman* . . . . University of Pennsylvania
(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee)

SPECIAL SERVICE

Only a limited number of references in each industry can be given and a part of the service of this Department will be to furnish any inquirers with additional sources of information, titles of other publications, names of authors and publishers, cost of volumes, and to provide any other information possible for which purpose address The Journal of the American Institute of Architects, The Octagon, Washington, D. C. Where special clerical services are involved a small fee may be charged to cover actual costs, in which case the amount will first be stated to the inquirer.

Note: For any additions, in subsequent numbers, to material appearing in earlier numbers, look always at heading of the Department for serial numbers preceding the current contents, and remember that the main serial number corresponds to the number of the month in the year.

The necessity for providing a historical background requires the publication of such material during the current year only, as a part of the whole idea of the permanent reference and record value of the work.

SOME EXHIBITIONS, CONVENTIONS AND MEETINGS

February 4 to March 10, 1917

February 4–24.—The Architectural League of New York, 215 West 57th St. Thirty-second Annual Exhibition of Architecture, Painting and Sculpture. This year includes Building Materials.

February 6–7.—National Lime Manufacturers' Association, Hotel Astor, New York. Annual meeting.

February 7–15.—Tenth Chicago Cement Show, Coliseum and Annex, Chicago, Ill.

February 8–9.—American Concrete Institute, La Salle Hotel, Chicago, Ill. Thirteenth Annual Convention.

February 8–10.—American Association of Engineers, Hotel La Salle, Chicago, Ill. Annual meeting.

February 12–13.—National Builders' Supply Association, Hotel Sherman, Chicago, Ill. Annual meeting.

February 12–14.—American Concrete Pipe Association Auditorium Hotel, Chicago, Ill. Annual meeting.

February 13–15. National Association of Builders' Exchanges, Piedmont Hotel, Atlanta, Ga. Sixth Annual Convention.

March 4–11.—National Brick Manufacturers' Association. Hotel McAlpin, New York City. Annual meeting.

March 5–11.—National Complete Building Exposition, Grand Central Palace, New York City.

March 6–10.—Twelfth Annual Mid-West Cement Show, Auditorium, Omaha, Neb.

March 7–10.—Mid-West Cement Users' Association, Hotel Rome, Omaha, Neb. Twelfth annual meeting.

INDEX—FEBRUARY, 1917. SERIAL NO. 2

(For General Index see page 88)

2A1 U. S. Geological Survey.
2A3 Bureau of Mines.
2B Lime and Hydrated Lime.
2B9 Whitewash.
2C Stone Masonry, Broken Stone, Sand and Gravel.
2D1 Stone for Building and Decoration.
2E1 Granite.
2F1 Marble.
2F4 Terrazzo Floors.
2G1 Limestone.
2H1 Sandstone.
2J1 Stone in General.
2K1 Slate.

2A1 United States Geological Survey; Department of the Interior

Created by act of Congress, March 3, 1879; organized July 1, 1879

Director: George Otis Smith, 1330 F Street, Washington, D. C.

Publications:

(*a*) Annual Report of the Director.
"Mineral Resources of the U. S.," in two parts.
(*b*) Part 1, "Metals."
(*c*) Part 2, "Non-Metals."
(*d*) Chapters of same, as separate pamphlets for earlier distribution.
(*e*) Monographs.
(*f*) Professional papers.
(*g*) Bulletins.
(*h*) Water-supply papers.
(*j*) Topographic Atlas of the U. S., folios and separate sheets.
(*k*) Geologic Atlas of the U. S., folios.
(*l*) Chapters of certain of classes *f* and *g* separately issued for early distribution.
(Of these publications those of especial interest to all persons concerned with structural materials are listed separately under the respective industries concerned.

Publications of the classes lettered *e*, *j*, and *k*, are sold at cost; the others (unless prices are affixed in the lists given) are distributed free as long as the stock lasts. It is impossible for the Survey to comply with general demands for the publications which are distributed free, such as to have all of any series sent, but requests for a certain paper are granted whenever practicable. No person can obtain more than one copy of any publication. Many of the publications of the Survey are out of print, but these can usually be obtained by purchasing from the Superintendent of Documents, Government Printing Office, Washington, D. C., or can be consulted at public libraries or purchased from dealers in second-hand books in any large city.

For publications to which prices are affixed in the lists given under the various industries prepayment is required, and should be made in cash (exact amount) or by postal or express money order (not postage stamps) payable to the Director of the United States Geological Survey, or to the Superintendent of Documents if the Survey's stock is exhausted.

Descriptive circulars and indexes in regard to topographic atlas sheets and monthly notices announcing the issue of new publications will be sent to those who request them.

Complete catalogue of all publications of the Survey obtainable without charge upon application to Director of Geological Survey, Washington, D. C.

Contributions of the United States Geological Survey to Architects

(Written for the Journal)

By ERNEST F. BURCHARD
Geologist in Charge, Section of Non-metallic Resources

A broad, comprehensive study of the non-metallic structural materials resources of the United States is being made by the U. S. Geological Survey in coöperation with the Bureau of Standards and Bureau of Mines. The Survey studies in the field and office, the occurrence, character, and distribution of the materials, classifies them according to their source, petrographic character, geologic origin and age, commercial uses and suitability for special purposes, and summarizes annually the commercial output and value of all these materials.

The Bureau of Standards tests in the laboratory the physical properties of the materials and makes comparative studies of their durability through observations of materials in use under various conditions. The Bureau of Mines studies in the field the technology of production and preparation for the market of the various materials, paying particular attention to the principles of safety, efficiency, and prevention of waste. Both the Bureau of Mines and the Survey collect materials for test by the Bureau of Standards, taking care not to duplicate work.

This coöperative study is necessarily a large undertaking—one which can be pushed ahead only so fast as men and funds are available for it; but, although it has been in progress only a few years, a good start has been made, and each of the three bureaus is contributing its share toward the fulfilment of the plan and has issued several reports dealing with subjects in its special field.

The forerunner of this coöperative work was a general field and laboratory investigation carried on by the Survey for several years prior to July, 1910, primarily for the information of the Supervising Architect with regard to structural materials available for the construction of projected federal buildings throughout the United States, but also designed to add to the Survey records data concerning materials of promise in any region under survey. The reports to the Supervising Architect were brief—generally about five typewritten pages. They were sent directly from the field without awaiting publication by the Survey. The work was carried on by geologists especially interested in the subject, and in order that there should be uniformity in the reports they were prepared mostly according to the following outline, which indicates the range of non-metallic materials studied by the Survey then, as well as now:

Structural Materials investigated for use in Federal Buildings:

I. Stone:
  A. Dimension stone for exterior.
    a. Foundations.
    b. Walls.
    c. Sills and trim.
  B. Ornamental stone for interior (marble, serpentine, onyx, etc.)
  C. Slate for roofing, sanitary fixtures, etc.
II. Material for concrete:
  A. Sand.
  B. Gravel.
  C. Crushed stone, slag, cinders, shells, etc.
  D. Cement (Portland, natural, hydraulic, etc)'
III. Clay products:
  A. Brick:
    a. Common.
    b. Front (pressed, rough, fire-faced, etc.)
  B. Tile:
    a. Roofing.
    b. Hollow building-tile or block.
    c. Ornamental.
IV. Materials for mortars and plasters:
  A. Lime:
    a. Quick.
    b. Hydrated.
  B. Gypsum wall-plasters.
  C. Sand.

Necessarily the work was done very rapidly, and the reports were written not for the use of geologists, but rather for that of persons who may not have had training in geology, care being taken that only data of practical character should be given. The points of special interest to the geologist, however, such as the nature, extent, quality (as to uniformity, durability, and color), location (as to means of handling and transportation), structure, and geologic relation in general, that affected the

use of materials, were borne in mind throughout the series of reports.

In these field studies the endeavor was to relieve the laboratory of all the work possible and to give the Supervising Architect a definite opinion as to the value and availability of a material, backed up by a detailed description of it and the results of a simple field-test. In addition, use was made of any authentic test data in possession of the producer or contained in state or federal geological survey reports. The common points considered with regard to stone, gravel, clay, gypsum, etc., were noted on special forms in loose-leaf books. Many special details had to be considered with regard to the various materials, and for brick and other clay products notes of a special form were kept regarding the processes of manufacture. Sands were subjected to qualitative tests for the presence of lime, alkali, clay, magnetite, quicksand, and silt. Granular metric analyses were made and the material was critically examined under the field-lens.

A knowledge of the Supervising Architect's general specifications was requisite, and after a little practice the geologist was able to tell in most cases, after a careful investigation, whether a sand, gravel, stone, or brick would fulfil these specifications or no.

The direct advantages of these reports to the Supervising Architect or to federal construction work in general may be summarized as follows:

1. Attention was called to materials of merit which, owing to their proximity to the building-site, should be obtainable at lower prices than similar materials from long distances.

2. Attention was called to little-developed and hitherto comparatively unknown materials that may possess special merit for certain kinds of work.

3. Warning was issued against the use of materials that are not suitable yet that are commonly used in certain localities.

4. Warning issued against the acceptance of materials from deposits which may be of good quality but of insufficient quantity.

5. Warning was issued against the acceptance of materials from deposits which may afford excellent material in small samples, but whose quality in adequate quantities is irregular and inferior.

6. Data regarding local costs and freight rates were given on small and large lots of all materials shipped into the locality, such as cement, stone, sand, wall-plasters, etc., thus affording aid toward preparing specifications for buildings.

7. Some attention was paid to the proposed federal building-sites, with reference to character and condition of the ground on which foundations would rest and with reference to smoke conditions.

In addition to the results of this work as related to the Government, its relation to the country at large may be mentioned. When little-known but meritorious materials were thus brought to the attention of the Supervising Architect, and incidentally to that of the public by use in federal buildings and by published reports, the efficient use of important natural resources was encouraged. In many instances materials that would probably otherwise have been passed unnoticed were brought to the attention of the Supervising Architect. Many such instances might be noted, but the following are fair samples showing the range of such materials covered.

1. Large and sound glacial boulders of both crystalline and sedimentary rocks that occur in great abundance in the vicinity of Minot, N. D., a region otherwise devoid of stone. These boulders can be split and trimmed into handsome, massive dimension stones.

2. The "chats" or tailings from the concentrating mills in the Platteville, Wis., and Joplin, Mo., zinc districts, and from the copper smelter at Great Falls, Mont., etc. These "chats" make a good aggregate for both plain and reinforced concrete work, and the tailings from the Great Falls smelter make good sand for mortar and brick.

3. Sandstone used locally at Big Stone Gap, Va.

4. Oölitic limestone at Bowling Green, Ky.

5. Subcrystalline limestone at Batesville, Ark., Frankfort, Ky., and Harriman, Tenn.

6. Shale near Mansfield, Ohio, suitable for brick-making.

7. Loam at various points in the Mississippi embayment in Arkansas, Mississippi, and Tennessee, suitable for the manufacture of brick.

8. Sand and gravel from points on Arkansas River in Kansas and Oklahoma very similar in quality to the well-known Kaw River sand.

Besides the work outlined above, there have been carried on at times at the laboratories of the Survey and the Bureau of Standards in Pittsburgh and Washington special investigations of such subjects as the manufacture and the hydration of lime and studies of Portland and Keene's cements and wall-plasters, tending toward the formulation of standard specifications for these materials in Government construction work. Here again the services of field geologists have been required and the geologic records of the Survey incidentally enriched. In areal field-work geologists frequently visit places containing developed and undeveloped deposts of limestone, sandstone, granite, slate, Portland cement and concrete materials, and gypsum, and the many special papers are either direct or incidental results of such work.

Papers published by the Geological Survey on structural materials available in parts of Oregon and Washington, at Minneapolis, Minn., at Austin, Tex., on the fire-resistive properties of various building materials, and on the effects of the San Francisco earthquake and fire on structures and structural materials, are examples of the results of the type of studies outlined above.

The annual volume entitled "Mineral Resources of the United States" furnishes architects and others with reliable and up-to-date information concerning many of the various materials which enter into construction. Each year statistics are compiled concerning over sixty subjects, giving the production, exports, imports, and value—information of vital interest to all who are dealing with both metallic and non-metallic mineral products. This information for each year is given as soon after the close of the year as possible, but of late years a provisional estimate has been made and published by the first of the year following the year for which the statistics are given and still more lately statistics on many of the important resources have been published semi-annually.

One very important phase of Survey work on structural materials remains to be mentioned. Special investigations have been made, or are in progress, in which certain geologists spend the whole or a large part of their time at certain periods studying a single subject in a district, a state, or throughout the United States. These special investigations have resulted in the publication of papers or bulletins on such subjects as the brownstones of Pennsylvania, the Bedford oölitic limestone of Indiana, the Portland cement materials of the United States, the gypsum deposits of the United States, the stone resources of the United States (illustrated by maps showing the locations of quarries by classes of stone), the granites

of Maine, the granites of the southeastern states, the marbles of western Vermont, the marbles of southeastern Alaska, building-stones of Minnesota, glass-sand in the Mississippi Basin, the clays of the United States east of the Mississippi River, and slate in the United States.

The profession of the architect requires special knowledge in so many diverse branches that it is not surprising that heretofore comparatively few have had the time or the inclination to inquire into the source and nature of the raw materials that enter into construction work. That there is an increasing interest in these subjects is, however, evident through the correspondence being received by the federal Geological Survey, especially from teachers of architecture and from architects who are seeking materials suitable for special purposes, for certain localities and climates, or in order to carry out definite color-schemes. To all such inquiries the Survey is endeavoring to respond to the best of its ability and to place at the disposal of architects and builders the results of its experience and its knowledge of the structural materials, resources of the United States, not only in the non-metallic materials, but in the metals, such as iron and steel, manganese, copper, lead, and zinc. The further use of the resources and services of the Survey is cordially invited and suggestions as to how this service and coöperation may be improved and extended will be welcomed.

2A2 State Geologists

Publications:

(*a*) Bulletins, reports and circulars are issued on behalf of many of the states, forty-seven of which recognize geologic work as a necessary and proper governmental function. These publications are generally furnished upon request.

The coöperation existing between state and federal geological surveys is both intimate and extensive in the conduct of topographic surveys, stream-gaging, and geologic investigations, as well as in the collection of mineral statistics.

In part the federal survey acts as the disburser of state funds in this technical work, in part the state official acts as the representative of the larger organization in local work, and again the national survey investigates some large interstate problem in behalf of adjoining states. Each of these coöperative methods is effective and prevents duplication of effort, accomplishes standardization of results, and promotes the coördination that secures the general results for the national bureau and the more local benefits for the state organization.

2A3 Bureau of Mines, Department of the Interior, U. S. A.

Created by Act of Congress, May 16, 1910. Organized July 1, 1910.

Director: Van. H. Manning, 710 E St., Washington, D. C.

Publications:

(*a*) Annual Report of the Director; (*b*) Bulletins; (*c*) Technical Papers; (*d*) Miners' circulars.

A limited number of those current, one only to each person, is free upon application to the Director.

NOTE: Publications of especial interest to architects and constructors will be referred to under the respective activities. For complete list of publications apply to the Director.

The great importance of the mine-safety and fuel investigations undertaken by the Geological Survey, and the widespread demand for a separate bureau to pursue these and other mining inquiries resulted in Congress passing an act, effective July 1, 1910, which established the Bureau of Mines, at the same time that the Structural Materials Laboratories of the Geological Survey the Engineer in charge of which was Richard L. Humphrey, were transferred to the Bureau of Standards.

While the Bureau's activities are confined to questions of safety and efficiency in the mining and utilization of the great variety of mineral products, there are necessarily places here and there where its work bears more or less directly upon subjects of architectural interest. These will be referred to in conection with the respective industries.

2A4 Society of Constructors of Federal Buildings

Secretary: Frederick A. Hills, New Post Office, Rumford, Maine.

Publications:

(*a*) Journal, devoted to professional papers and discussions, cost data, changes of addresses of members and contract news relative to United States public buildings.

Purpose:

Is a voluntary organization of the technical personnel of the Office of the Supervising Architect, Treasury Department, but has no official connection with the Department.

2A5 Building Data League, Inc.

President: Sullivan W. Jones, 15 West 38th St., New York, N. Y. *Secretary:* F. A. Burdett, 15 West 38th St., New York, N. Y.

An Association, the membership of which embraces persons acting in either a professional or contractual capacity as agents of the consumer in the field of building construction.

Annual dues are $10, and the service consists of reports on research work, reports on investigations of products, and the preparation and publication of standard specifications for distribution to members.

Publications:

(*a*) "Standard Specifications" embodying general information in establishing standards for measuring the comparative worth of competing products in the given classes.
(*b*) "Findings" on registered products.
(*c*) Reports on non-registered products.
(*d*) Bulletin, issued to members at intervals.

The "Findings" and reports are based upon the standards established by the specifications.

2B Lime and Hydrated Lime

The subjects under this heading will be treated herein with respect to their uses in foundational work, masonry, and in mortars generally—but not specifically in connection with "plastering," to which reference will be fully made in a later Serial Number.

2B1 *Lime*

The lime manufactured and sold in the United States in 1915 amounted to 3,589,699 short tons, valued at $14,336,756.

The quantity produced for building purposes according to the figures given in "Lime in 1915," issued by the U. S. Geological Survey (2A1*d*), on the basis of about one third of the total, was 1,163,433 short tons, valued at $5,068,375, or an average price per ton of $4.36 received by the producers. In this amount was included 581,114 tons of hydrated lime.

2B2 *National Lime Manufacturers' Association*

President: W. E. Carson, Riverton, Va.
(Information concerning same difficult to obtain.)

2B3 *Information Obtainable (Lime)*

Publications:

(*a*) The source, manufacture and use of lime, "Mineral Resources of the United States for 1913, pt. 2, pp. 1509–1593, 1914, E. F. Burchard and W. E. Emley.
(*b*) See also chapters on lime in "Mineral Resources of the United States" for each year (2A1*c* and *d*).
(*c*) The U. S. Geological Survey has also issued a large number of bulletins and separate chapters (2A1*d* and *g*) dealing with lime, and other structural materials to be found in various parts of the country. Specific information will be furnished through the Journal or the publications may be had upon application to the Director as noted under 2A1.
(*d*) Proceedings and other publications of the National Lime Manufacturers' Association (2B2).
(*e*) Bureau of Standards, Technologic Paper (1A2*c*) "The Manufacture of Lime."
(*f*) Ditto, "The Properties and Uses of Lime."
(*g*) "Treatise on Limes, Hydraulic Cements and Mortars," Gen. Q. O. Gilmore.
(*h*) "American Civil Engineers' Pocket-Book," M. Merriman; "Lime and Lime Mortar," pp. 518–520.
(*j*) "Cements, Limes and Plasters," E. C. Eckel.
(*k*) "Building Construction and Superintendence," F. E. Kidder; "Limes, Cements and Mortars," pp. 126–204.
(*l*) Other information pertaining to lime, generally in connection with its use in mortars for masonry, will be found in most of the publications mentioned under "2C4. Other References."

2B4 *Hydrated Lime*

The hydrated lime sold in the United States continues steadily to increase, the amount produced in 1915 being stated under "Lime."

The average price per ton, though fluctuating, has on the whole been declining since 1911, when it was $4.50. These changes may suggest that the production of hydrated lime has reached such proportions that its future growth will be at a slower rate than formerly, but as the quantity sold by producers in 1915 amounted to only 16 per cent of the total lime sold, there is ample room for future growth, especially in view of the marked attention now being given to this kind of lime. The superiority of hydrated lime over lump lime for building is receiving broader recognition, due in part to the activity of the Hydrated Lime Bureau, a branch of the National Lime Manufacturers' Association.

An elaborate series of experiments on the properties and uses of hydrated lime, including its effect upon concrete, has been commenced by the United States Bureau of Standards (see "Current Activities"). In addition to these developments, improvements have been made in lime hydrators and in the design of lime-hydrating plants, and a process for increasing the plasticity or spreading quality of hydrated lime by the addition of a limited quantity of clay during hydration has been patented by W. E. Carson (From "Lime in 1915," 2A1*d*).

2B5 *Hydrated Lime Bureau of the National Lime Manufacturers' Association*

Manager: Norman S. Hough, Arrott Building, Pittsburgh, Pa.

The object of the Bureau is to furnish a central office from which architects, engineers and contractors may receive reliable information relative to the use of hydrated lime for building purposes.

Publications:

Books, bulletins and pamphlets, some of which are referred to under 2B6 and 2B8.

2B6 *Information Obtainable (Hydrated Lime)*

Publications:

(*a*) See also Chapters on lime in "Mineral Resources of the U. S." for each year (2A1*c* and *d*).
(*b*) "Hydrated Lime," by E. W. Lazell, 95 pp. Published by Jackson-Remlinger Printing Co., Pittsburgh, Pa., 1915; distributed by the Hydrated Lime Bureau, Pittsburgh, Pa. (A general elementary text on the history, chemistry, manufacture, properties, and uses of hydrated lime.)
(*c*) "Hydrated Lime," by W. B. Joseph, Cement and Engineering News, February, 1915, pp. 45–46. (A brief account of the processes of manufacture and properties of hydrated lime.)
(*d*) "Effect of Adding Hydrated Lime" (to Portland cement), Cement and Engineering News, March, 1915, p. 76. (Cities experiments by Henry S. Spackman, who concluded "that the addition of hydrated lime will be found advantageous under ordinary climatic conditions in concrete work generally, where it is exposed either to air or to fresh water; and concrete to which such additions have been made, besides being more impermeable, will show less change in volume under varying moisture content.")
(*e*) Papers read at the thirteenth annual meeting of the National Lime Manufacturers' Association and published in the minutes of the meeting, February, 1915: "Hydrated Lime Plastering—the Fourth Year's Development," by Lawrence Hitchcock; "The Possibilities of Hydrated Lime Products for Plastering Purposes," by H. S. Spackman; "Hydrated Lime in Oregon State Roads," by R. S. Edwards; "Hydrate as an Addition to Concrete," by E. M. Soper; "A Modern Hydrating Plant," by R. K. Meade.
(*f*) "Advantages in Use of Commercially Hydrated Lime over Ordinary Slaked Lime," by E. W. Lazell, Cement and Engineering News, June, 1915, pp. 125–126.
(*g*) "Perfecting Concrete Roads—the Part That Hydrated Lime Plays in Assuring Absolute Permanency to Concrete," by Charles Warner, Cement and Engineering News, September, 1915, pp. 198–200.
(*h*) Papers read at the fourteenth annual meeting of the National Lime Manufacturers' Association, Cleveland, Ohio, February, 1916 (published in the minutes of the meeting).

The following are some of the pamphlets and bulletins published by the Hydrated Lime Bureau. (Those referring to "wall plastering" will be mentioned under a later Serial number.)

(*j*) "Tests and Uses of Hydrated Lime," A. C. Hoff. A reprint from the Current Era of February, 1915.
(*k*) "Dependable Concrete—Hydrated Lime and its Effect on," Bulletin A.2.
(*l*) "In the Concrete Chute," Bulletin A. 3.
(*m*) "Improving Paving Grout," Bulletin L.

(*n*) "Improved Cement Blocks," Bulletin M.
(*o*) "Concrete Gas Tank Waterproofed with Hydrated Lime," Pamphlet D.
(*p*) Waterproofing Concrete with Hydrated Lime."
(*q*) "Improving Concrete Roads," Pamphlet K.

2B7 *Other References*

See "Kidders Pocket Book," 1916, pp. 1462–1467, for lime and a brief description of the process of making hydrated lime. Other references will be found in most of the publications concerned with masonry mentioned under 2C4 and also under 2B3.

2B8 *Practice Recommended by Various Authorities*

Hydrated Lime Bureau (2B5).
(*a*) "The Ideal Mortar for Brick Masonry—Mortar No. 5," Bulletin J, June 1, 1916. (Contains results of investigation conducted by Prof. J. S. Macgregor, of Columbia University, New York City.)

Standard specifications for plastering and other practice recommended for the use of lime and hydrated lime will be referred to under "Plastering" in a later Serial number.

2B9 *Standards Adopted*

By Navy Department, U. S. A.

(*a*) Specifications for "Concrete and Mortar, and Materials for (cement not included)," Serial designation 59C2*c*, adopted February 1, 1916, copies of which can be obtained upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, provide for lime, lime-paste, lime-cement mortar.

By American Society for Testing Materials (1A4*c*)

(*b*) "Standard Specifications for Quicklime," Serial designation C5-15.
(*c*) "Standard Specifications for Hydrated Lime," Serial designation C6-15.

By Department of Commerce and Labor—Lighthouse Establishment

(*d*) *Whitewash Formulas.* A document with this title is issued which describes what is generally known as "Government Formula" for whitewash of which a verbatim transcript is—

WHITEWASH

The following formula for whitewashing has been found by experience to answer on wood, brick, and stone, nearly as well as oil paint, and is much cheaper:

Slake half a bushel of unslaked lime with boiling water, keeping it covered during the processs. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water and boiled to a thin paste; half a pound of powdered Spanish whiting, and a pound of clear glue dissolved in warm water; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible, with painters' or whitewash brushes.

A SIMPLER WHITEWASH

The following formula for mixing whitewash, when properly made and put on, gives a white that does not easily wash or rub off, viz:

To ten parts of best freshly slaked lime add one part of best hydraulic cement; mix well with salt water and apply quite thin.

By United States Congress

(*e*) *Standard Sizes of Barrels.*

The Sixty-third Congress passed a bill (H. R. 4899) which became effective July 1, 1916, making the standard size of barrels for all dry measures as follows:

"Length of staves, 28½ inches; diameter of heads, 17⅛ inches; distance between heads, 26 inches; circumference at bilge, 64 inches, outside measurement; thickness of staves not greater than $\frac{4}{10}$inch. It is further provided that any barrel of different form having a capacity of 7,056 cubic inches, shall be a standard barrel."

Opposition to this bill among lime-producers caused the introduction of another bill in the Sixty-fourth Congress, entitled "An act to standardize Lime Barrels" which was approved August 23, 1916, all provisions of the act to become effective January 1, 1917, by which there was established a large and a small barrel of lime, the large barrel to consist of 280 pounds and the small barrel to consist of 180 pounds net weight. (The provisions of these two bills are set forth in "Lime in 1914" and "Lime in 1915" (2A1*d*) and "A General Statement in Regard to the Standard Lime Barrel Law" has been issued by the Bureau of Standards.)

2B10 *Current Activities*

(*a*) *Recent developments* in the building-lime trade, by which old objections to lime as a building material are being overcome, are reasons for encouragement. The principal development is the increased use of hydrated lime in preference to lump lime, and the greater care and accuracy required in the process of manufacture of hydrated lime. The danger of pitting or "popping" of wall-plaster, due to incomplete hydration of lime, is eliminated by the use of thoroughly prepared hydrated lime. From "Lime in 1915, 2A1*d*

(*b*) *Wet-Mortar Plants.* An interesting development in the lime industry is described by William C. Hay in "How Lime Can Be Reëstablished in the Plaster Field," Bulletin No. 7, National Lime Manufacturers' Association (advance of minutes, April, 1916).

It is the introduction of a new type of wet-mortar plant that has been in operation for two years in some of the large building centers of the Pacific coast, manufacturing hard-lime mortar, masonry mortar, finishing putty, and other products. The plant buys kiln-run lime in bulk. It is of the continuous type. The lime is drawn from tight storage-bin into slaking-tank, and after the quicklime has been hydrated or slaked to the consistency of thick cream, it is strained off into curing-vats, the lighter fluid into the "plaster-vats" and the remainder into the "masonry vats."

After aging, the putty is mechanically aërated by violent agitation, after which it flows through a feed-valve to mixer. Here it comes in contact with sand and Keene's cement, which also feed continuously and uniformly, the cement discharging into the sand-feeder before the sand reaches the mixer. As this mass is being churned through the mixer, fiber or hair is fed by a steadily running "draper" to a picking-drum which disintegrates and feeds the hair in finely separated strands into the cold and continuously mixing mass of mortar. From the end of mixer the mortar is elevated to measured steel loading-tanks, from the bottom of which auto trucks of 4 cubic yards capacity are loaded by the opening of a gate. The expense of hauling the extra weight of water in the wet mortar is said to be negligible where auto trucks are employed.

Imperfections due to carelessness of laborers mixing the mortar or to incomplete slaking of the lime are eliminated, as the finished mortar is delivered ready for spreading. It may, however, like unmixed hydrated lime, be kept for days without noteworthy deterioration.

It is estimated that in 1915 these wet-mortar plants purchased approximately 8,000 tons of lime from pro-

ducers, and sold approximately 90,000 tons of mortar, valued at about $270,000, or about $3 a ton.

(*c*) *Alca Lime.* A recent development in the lime industry, is a patented article offered for sale by many licensees in the U. S. under the Spachman patents. See description in "Kidder's Pocket Book," 1916, p. 1467.

(*d*) *Properties of Hydrated Limes.* In 1915 the American Society for Testing Materials adopted the standard specifications for hydrated lime. (Referred to under "Standards Adopted.") It was desired to learn just how the material made by different manufacturers compared with the requirements of these specifications. This will serve the double purpose of giving information as to the qualities of different brands of hydrated lime, and also enable one to form an opinion as to the justice of certain limiting values placed in the specifications. At the present time samples have been examined from about one fourth of all the factories in the United States.

Hydrated lime consists chiefly of calcium hydroxide and generally contains more or less magnesium hydroxide. In the ordinary process of manufacture there is a danger of forming a hydrated lime which has "burned during hydration," a gritty, non-plastic, yellow material, which has a tendency to expand when wet. It is supposed that this phenomenon is caused by partial decomposition of the calcium hydroxide due to the heat generated during the slaking. A study of the temperature required to decompose calcium hydroxide under different conditions was undertaken to eliminate, if possible, this difficulty.

—From Report Bureau of Standards, 1916, 1A2*a*.

(*e*) *Properties of Lime-Cement—Sand Mortars.* It has become general practice to add small quantities of hydrated lime to cement mortars, either for plastering or masonry in order to make them work more freely. It is desirable to know just what effect this lime has on the properties of the mortar. A large number of mortars of varying proportions of the three ingredients have been tested for compressive and tensile strengths when stored in air or under water, expansion, adhesion to brick and plasticity.

—From Report Bureau of Standards, 1916, 1A2*a*.

(*f*) *Hydrated Lime in Concrete.* Hydrated lime, in small amounts, is being added to a great deal of the concrete now being used for various reasons. It is important to know how such an addition will affect the properties of the concrete. At the request of the Bureau an advisory committee, composed of engineers, contractors, and lime and cement manufacturers, has helped to plan an exhaustive research on this subject. It is hoped to determine (1) what proportion of hydrated lime is best for different kinds of concrete, (2) whether or not there is a difference in the behavior of high calcium and high magnesian hydrate, and (3) what effect hydrated lime has on the following properties of concrete: compressive strength, segregation of aggregate, adhesion to reinforcement, resistance to abrasion, resistance to sea water, expansion, absorption of water, and permeability to water.

—From Report Bureau of Standards, 1916, 1A2*a*

2C Stone Masonry, Broken Stone, Sand and Gravel

In treating of stone for building purposes, rough stone, which is a localized product, will be referred to only in connection with masonry, and broken or crushed stone principally for its use in concrete.

Crushed stone is the largest factor in the stone industry at the present time. In 1907, owing particularly to the great increase in the building of macadam roads, the total value of crushed stone exceeded that of exterior building stone, and the excess in value has been increasing almost continuously ever since.

The following are among the organizations interested in the promotion of products allied with these industries; as a representative of the industrial activities there exists the International Union of Bricklayers, Masons and Plasterers, which is a trade union for advancing the interests of its members.

2C1 *Inter-State Stone Manufacturers' Association*

Incorporated 1913 under the laws of the state of Ohio, not for profit

Acting Secretary: Claude Clark, Columbus, Ohio.

Formed to promote, and increase the use of stone.

Standards: (a) Has formulated standards for numbers and sizes of aggregates of broken stone, which, it is stated, will appear in new specifications of the State Highway Department of Ohio.

2C2

Other associations exist which are interested in the production and use of rough and broken stone, sand, gravel and other "builders' supplies." These will be referred to as their work toward standardization of materials or practice comes to our notice.

2C3 *Information Obtainable*

(*a*) The U. S. Geological Survey has issued many bulletins (2A1*d* and *g*) dealing with rubble and range rock, broken stone, sand, gravel and other structural materials to be found in various parts of the country. Specific information will be furnished by the Journal or the publications may be had upon application, to the Director. (See 2A1.)

(*b*) See chapters on "Stone" in "Mineral Resources of the U. S." for each year (2A1*c* and *d*).

(*c*) "Production of Glass Sand, Other Sand, and Gravel in 1909" (includes numerous analyses): "Mineral Resources of the U. S." for 1909, E. F. Burchard. Pt. 2, 1911, pp. 519–542.

(*d*) See also chapters on "Sand and Gravel" in "Mineral Resources of the U. S." for each year (2A1*c* and *d*).

(*e*) For the relative value of various aggregates, including round- and sharp-grained sands, gravels and other materials and proper methods for testing aggregates see Techologic Paper No. 58 referred to in 1E4 *m* and *q*.

(*f*) For specific information on roads and road materials, apply to the Journal.

(See also 1D1*p*, 1E9, and 2B6.)

For masonry and foundations, see also 1C1 and 1C2.

For waterproofing and dampproofing, see 1D.

For broken stone, sand, and gravel in concrete and for concrete foundations, see 1E4, 5 and 6.

2C4 *Other References*

(*a*) "A Treatise on Masonry Construction," Ira O. Baker.
(*b*) "Masonry," Malverd A. Howe.
(*c*) "The American Civil Engineers' Pocket Book," M. Merriman. Masonry, Foundations, Earthwork, Highway Engineering.
(*d*) "Kidder's Pocket Book," 1916.
(*e*) "Building Construction and Superintendence," F. E. Kidder. Part 1. Masons' Work.
(*f*) "The Building Estimators, Reference Book," F. A. Walker.
(*g*) "Design of Walls, Bins and Grain Elevators," M. S. Ketchum.
(*h*) "The Building Trades Handbook," Masonry Construction.
(*j*) "Standard Specifications," J. C. Ostrup.
(*k*) "Handbook of Cost Data," H. B. Gillette.
(*l*) "Strength of Materials," Edward R. Maurer.
(*m*) "A Practical Treatise on Foundations," W. M. Patton.
(*n*) "The Building Mechanics' Ready Reference," H. S. Richey. Stone and Brick Masons' Edition.

(*o*) Rock Excavating and Blasting, J. J. Cosgrove.
(*p*) "Trautwine's Civil Engineer's Pocket Book."
(*q*) "Highway Construction," A. J. Byrne and A. E. Phillips.
(See also 2J Stone in General.)

2C5 *Practice Recommended by Various Authorities* (See also Serial No. 1, C, D, and E.)

By American Railway Engineering Association (1A9*f*):
(*a*) "Waterproofing of Masonry."
By National Board of Fire Underwriters (Serial No. 3):
(*b*) "Building Code Recommended," 1915—Part VI, "Walls," pp. 34–50, 86; Part XXVI, "Chimneys, Flues and Heating Apparatus," pp. 173–184.
(*c*) "Dwelling Houses, A Code of Suggestions for Construction and Fire Protection," 1916—Part III, "Walls," pp. 21–31; Part VI, "Chimneys, Flues, Smoke pipes and Fireplaces," pp. 50–64.
By N. F. P. A. (Serial No. 3):
(*d*) "Specifications for Construction of a Standard Building," in which is stated "The construction of buried footings is not considered a part of these specifications; retaining walls, if built of stone, must be plastered on the exposed side with ¾ inch of cement mortar," and "If cap-stones are used, they shall be protected against fire by 4 inches of fireproofing," no other reference to stone being permitted in a "Standard Building."
By American Society for Testing Materials (1A4*c*):
(*e*) "Tentative Standard Method for Form of Specifications for Certain Commercial Grades of Broken Stone," Serial designation D35–16.
(*f*) For certain practice recommended with reference to roadwork see 2C3*f*.

2C6 *Standards Adopted*

By Navy Department, U. S. A.:
(*a*) Specifications for "Concrete and Mortar and Materials for (cement not included)," Serial designation 59C2*c*, adopted February 1, 1916, copies of which can be obtained upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, provide for Sand for Concrete, Sand for Mortar, Broken Stone, Gravel, Lime-cement-mortar.
By American Railway Engineering Association:
(*b*) "Standard Specifications for Stone Masonry" (1A9*f*), containing Classification of Masonry, Definitions, Cement (same as 1E7*a*), General Requirements, Bridge and Retaining-Wall Masonry, Ashlar Stone, Rubble Stone, Arch Masonry, Dry Masonry.
By American Society for Testing Materials (1A4*c*):
(*c*) "Standard Sand," mentioned in "Specifications and Tests for Portland Cement," Serial designation C9-17.
(*d*) "Standard Definitions of Terms Relating to Materials for Roads and Pavements," Serial designation D8-15.
(*e*) The A. S. T. M. has issued a considerable number of standard tests and methods in connection with macadam rock, broken stone, bituminous and other materials used in roadwork, under the Serial designation D. (1A4*c* and *e*.)
By Inter-State Stone Manufacturers' Association:
(*f*) Numbers and sizes for aggregates of broken stone (2C1*a*).
For reference to lack of Standards with respect to the "perch" and other forms of measurement, see 2J8.

2D1 Stone: For Building and Decoration

(*a*) The development of the stone industry in the United States is fostered and encouraged by the U. S. Geological Survey. In the effective quarrying and methods of production the Bureau of Mines coöperates with the Survey and with the producers. The Bureau of Standards likewise coöperates with all. (See Mr. Burchard's article under 2A1.)

An awakening is now taking place to the importance of a better understanding of the kinds of stones to be used in buildings and the best method to be employed for their finish and setting. To quote from "Stone in 1915" (2A1*e*):

"There has been a tendency by some producers to market only stone of the finest quality, even for mediocre uses, instead of conserving resources and using second- or third-class stone where the highest degree of appearance is not demanded. Stone rated as second or third class in appearance may be the equal of first-class stone in strength and durability, a statement well supported by the fact that stones now regarded as inferior in appearance have been exposed in buildings of the older cities of the country for as much as 50 or even 100 years without appreciable evidence of deterioration. Exposure for such periods is the most reliable of all tests of building stone.

"Another fact worth mention here is that the settling of dust and smoke upon the surface of light-colored stone soon obscures its original color so that there is no appreciable difference in appearance between first-class and second-class stone. If more consideration were given to the probable appearance of a building after it is a few years old than to its appearance when it is new, the cost of the stone could probably be lessened without impairing its durability in the least."

With reference to stone for building and other purposes the publications of the U. S. Geological Survey are numerous and complete. Beside treating of all stone produced annually in chapters on stone in "Mineral Resources of the U. S." (2A1*c*), these chapters are issued separately for earlier distribution. Some of the bulletins and other documents pertaining to particular stone industries or localities are mentioned under the various subdivisions of stone and under "Stone in General."

It is quite impossible to list the publications of the various state geologists (2A2) the names and addresses of which organizations may be had upon application to the Journal.

2E1 Granite

In 1915, the granite production of the United States was valued at $17,864,000, divided as follows (by millions): Building 4.7, monumental 4.87, paving 2.35, crushed 3.82, the balance in curbing, flagging, rubble and riprap. Importations, $144,382.

In connection with this industry there exists the following national and locality organizations:

2E2 *National Association of the Granite Industries of the United States*

Secretary: Robert D. Smith, 161 Devonshire St., Boston, Mass.

It is the purpose of this organization to associate in a central body all persons, firms or corporations engaged in carrying on any department of the granite industry in any part of the United States.

"The fact that there are three distinct divisions in the industry, viz., quarrying, manufacturing for building and paving work, and manufacturing for monumental purposes, is recognized, but inasmuch as neither of these divisions can conduct business without relations with one of the other two divisions, it is considered imperative that all three divisions be comprehended in this organization, provision being made so that the specific values and rights of each department may be preserved."

2E3 *The Granite Manufacturers' Association of Barre, Vermont*

Secretary: Harold P. Hinman, Barre, Vt.

Consists of over 97 per cent of the quarry owners and manufacturers in the Barre granite center, to promote the best interests of the Barre granite industry. Coöperates

with the Quarry Owners' Association in a campaign to increase the volume of sales and to improve the quality of memorial and building work.

Publications:

(*a*) A house organ known as "Barre Granite" for distribution to members and discussion of the affairs of the Association.

2E4

Other locality granite associations, concerning whose activities and publications we have not heard, exist in Hardwick, Vt., Milford, N. H., Concord, N. H., Quincy, Mass., and Westerly, R. I.

2E5 *Information Obtainable*

(A to K, U. S. Geological Survey. To obtain, see 2A1.)

(*a*) "The Granite Industry of the Penobscot Bay District, Maine," G. O. Smith. Bulletin No. 260, pp. 489–492, 1905. (Exhausted.)
(*b*) "Recent work on New England Granites," T. N. Dale. Bulletin No. 315J, pp. 356–359, 1907.
(*c*) "The Granites of Maine," T. N. Dale. Bulletin No. 313, 202 pp., 1907. 35 cents.
(*d*) "The Chief Commerial Granites of Massachusetts, New Hampshire, and Rhode Island," T. N. Dale. Bulletin No. 354, 228 pp., 1908.
(*e*) "The Granites of Vermont," T. N. Dale. Bulletin No. 404, 138 pp., 1909. 20 cents.
(*f*) "Supplementary Notes on the Granites of New Hampshire," T. N. Dale. Bulletin No. 430, pp. 346–372, 1910. 60 cents.
(*g*) "Granites of the Southeastern Atlantic States," T. L. Watson Bulletin No. 426, 282 pp., 1910.
(*h*) Supplementary Notes on the Commercial Granites of Massachusetts," Bulletin No. 470, pp. 240–290, 1911.
(*j*) "The Granites of Connecticut," T. N. Dale and H. E. Gregory. Bulletin No. 484, 137 pp., 1911.
(*k*) "The Aberdeen Granite Quarry, near Gunnison, Colo." J. F. Hunter. Bulletin No. 540, pp. 359–362, 1913. 45 cents.
(*l*) See, also, chapters on "Stone" in "Mineral Resources of the U. S." for each year, (2A*c* and *d*).

2E6 *Other References* (See, also, 2J4 and 5.)

(*a*) "History of the Granite Industry of New England," Arthur W. Brayley.
(*b*) For information concerning specifically Milford granites see Industrial Section, pp. XIII, XIV.

2E7 *Practice Recommended by Various Authorities*

(For Mausoleum Specifications, see Industrial Section, page XIII.)

2F1 Marble

The marble production from twenty-one states in the United States in 1915 was valued at $6,738,000, of which by far the largest part was used in building. Dressed Vermont marble appears to have averaged $3.20 per cubic foot, while Georgia undressed averaged $1.10, and Tennessee undressed, $1.79. Importations in 1915, $600,000.

"Onyx" marble, or travertine, is quarried in small quantity annually. In 1915 the average price on the total output of 4,574 cubic feet, from Utah, Kentucky and New Mexico, was $4.21. Importations in 1915, $30,000.

In this industry there appears to be no national association composed entirely of producers but there does exist the:

2F2 *National Association of Marble Dealers*

Incorporated under the laws of New York, 1903

Secretary: Wm. A. Davis, 1328 Broadway, New York City.

Confines its activities to interior marble and has prepared, adopted, and circulated a Code of Practice (2D7*a*) governing conditions of estimating, awarding of contracts, grades of marble and workmanship.

The membership includes practically all of the important dealers in the United States, exclusive of New York City and the Pacific coast; also includes quarriers, many of whom are finishers as well.

In September, 1913, this Association entered into a five-year agreement (2D7*b*) with the Bricklayers', Masons' and Plasterers' Union, establishing a standard wage rate throughout the country for the installation of marble, which warrants direct contracts between the architect, owner, or general contractor, and the marble dealer.

The Association has indorsed the standard documents of the American Institute of Architects (1A8*g*) and looks forward to their more complete use as a solution of many controversies not now eliminated by the Code of Practice referred to.

Publications:

(*a*) "Code of Practice." Adopted at the Annual Meeting in New York, November 11, 12, 1915. Copies furnished upon request.
(*b*) "Agreement" (referred to above), copies of which may be had upon request.
(*c*) Bulletins to members at frequent intervals.

2F3 *Information Obtainable*

(A to H, U. S. Geological Survey. To obtain, see 2A1.)

(*a*) "Tennessee Marbles," Arthur Keith. Bulletin No. 213, pp. 366–370, 1903. (Exhausted.)
(*b*) "Marble of White Pine County, Nev., near Gandy, Utah," N. H. Darton. Bulletin No. 340G, pp. 377–380, 1908.
(*c*) "Marble in Chiricahua Mountains, Arizona," D. Siney Paige. Bulletin No. 380, pp. 299–311, 1909. 40 cents.
(*d*) "Variegated Marble Southeast of Calera, Shelby County, Ala.," Charles Butts. Bulletin No. 470, pp. 237–239, 1911.
(*e*) "The Commercial Marbles of Western Vermont," T. N. Dale. Bulletin No. 521, 170 pp., 1912.
(*f*) "Ornamental Marble near Barstow, Cal.," Robert W. Pack. Bulletin No. 540, pp. 363–368, 1913. 45 cents.
(*g*) "The Calcite Marble and Dolomite of Eastern Vermont," T. N. Dale. Bulletin No. 589, 67 pp. 1915.
(*h*) See also chapter on "Stone" in "Mineral Resources of the U. S.," for each year (2A*c* and *d*).

The Bureau of Mines is investigating problems connected with the mining and technology of various building stones. The following will be found descriptive of the production of this building material:

(*j*) "The Technology of Marble Quarrying." Bull. No. 106 (2A3*b*).

2F4 *Terrazzo Floors and Marble Floors*

(*a*) An interesting series of papers treating of same, with suggested specifications, by Charles A. Marsh, Ernest L. Hesse, Carl C. Holloway and David C. Trott, contained in Journal of the Society of Constructors of Federal Buildings (2A4*a*) for November, 1914. This subject will be referred to more fully under "Floors" in a later Serial number.

2F5 *Other References* (See, also, 2J4 and 5.)

(*a*) "Marble and Marble Workers," W. S. Renwick.
(*b*) "Notes on Domestic White Building Marble" Topic 1081, Bulletin of Building Data League (2A5).

2F6 *Current Activities:*

The National Association of Marble Dealers is investigating the entrance of finished foreign marble into this country free of duty, and has established arbitration methods for settling disputes as to the grades and workmanship of marble. (See "Code of Practice," 2F2*a*.)

2G1 Limestone

Limestone was produced in the United States, in 1915, to the value of about $35,000,000. Pennsylvania, Ohio, Indiana, New York, Illinois, Missouri, Michigan and Virginia led in the order named, with productions of over $1,000,000. Only about $3,000,000 of this total represents building stone, the balance (in millions) being used largely for flux 9.6, concrete 5.3, ballast 3.6, and road metal 8.16. Large quantities were also used in the making of cement.

The average price per cubic foot for rough building stone dropped from 21 cents per cubic foot in 1914 to 17 cents in 1915, while the average for dressed stone dropped in the same period from 52 cents per cubic foot to 47 cents.

Much work is being done by producers toward improving the conditions of production, sale, and transportation. —Notes from "Stone in 1915."

2G2 *Indiana Limestone Quarrymen's Association*

Secretary: R. M. Richter, Bedford, Indiana.

A voluntary organization of producers of limestone formed for the purpose of transfusing information about this material and its applications and for promoting its greater use.

It is understood that this Association will take up officially the question of recommendations or specifications for the setting of limestone and will welcome the suggestions or comments of architects. (See letter from Secretary under Practice Recommended (2G6.)

Publications:

(*a*) "Indiana Limestone," Vol. I.

2G3 *Bedford Stone Club Auxiliary*

Secretary. R. M. Richter, Bedford, Indiana.

Organized to bring about better conditions in the limestone trade as between the cut-stone contractor in this district and the general contractors throughout the country.

Publishes a circular ennunciating these principles.

2G4 *Information Obtainable*

(A to J, U. S. Geological Survey. To obtain, see 2A1.)

(*a*) "The Limestone Quarries of Eastern New York, Western Vermont, Massachusetts, and Connecticut," H. Ries. Seventeenth Annual Report, pt. 3 (continued), pp. 795–811, 1896.

(*b*) "The Bedford Oolitic Limestone of Indiana," T. C. Hopkins and C. E. Siebenthal. Eighteenth Annual Report, pt. 5 (continued), pp. 1050–1057, 1897.

(*c*) "The Bedford Oolitic Limestone (Indiana)," C. E. Siebenthal. Nineteenth Annual Report, pt. 6 (continued), pp. 292–296, 1898.

(*d*) "Limestones of Southwestern Pennsylvania," F. G. Clapp. Bulletin No. 249, 52 pp., 1905.

(*e*) "Cement Materials and Industry of the United States," E. C. Eckel. Bulletin No. 243, 395 pp., 1905. (Treats of limestone.) 65 cents.

(*f*) "Limestone and Dolomite in the Birmingham District, Alabama," Charles Butts. Bulletin No. 315G, pp. 247–255, 1907.

(*g*) "Oolitic Limestone at Bowling Green and Other Places in Kentucky," J. H. Gardener. Bulletin No. 430, pp. 373–378, 1910. 60 cents.

(*h*) "The Oolitic Limestone Industry at Bedford and Bloomington, Ind.," J. A. Udden. Bulletin No. 430, pp. 335–345, 1910. 60 cents.

(*j*) "Portland Cement Materials and Industry of the United States," Bulletin No. 522, 401 pp. (Treats of limestone.)

(*k*) "Some Notes and Letters on Bedford Stone," Fremont B. Ward. In Journal of the Society of Constructors of Federal Buildings (2A4*a*), November, 1914.

(*l*) "Report of the Committee on Stone Inquiry," referred to under 2J4*f* and *g*, treats of limestone.

2G5 *Other References* (See, also, 2J4 and 5.)

(*a*) "Indiana Limestone" being Vol. 1, now current, the first of a series to be issued by the Indiana Limestone Quarrymen's Association (2G2*a*).

(*b*) For other information on limestone see Industrial Section, pp. XI.

2G6 *Practice Recommended by Various Authorities*

(January 31, 1917)

"In connection with specifications to cover the setting of Indiana limestone, we have to suggest the following:

"'The Indiana Limestone to be plastered on the back with ¾ inch of lime-mortar—rake out all joints on face to avoid spawling, point up at completion with equal parts of non-staining cement and clean white sand.'

"It is our further opinion, however, that it would be advisable to apply on the back of the stone one heavy coat of hot asphalt before plastering same; also, as a precaution against staining, we would advise that the walls of the building be covered each night and at all times during cessation of work, in order that rain, snow or frost may be prevented from getting into the brick wall, causing possible discoloration by reason of same."

(Signed) INDIANA LIMESTONE QUARRYMEN'S ASSOCIATION

2H1 Sandstone

The production of sandstone in 1915 was valued at about $6,000,000, of which about $1,400,000 was in building stone, the balance representing ganister, paving, curbing, flagging and rubble.

2H2 "*Bluestone*"

"The figures of production for bluestone, most of which is quarried in southeastern New York and northeastern Pennsylvania, are included in those of sandstone. This stone is used chiefly for flagging, for curbing, and for sills, lintels, steps, and house copings.

"The bluestone trade, like other branches of the stone industry, is said to have suffered through lack of organization and coöperation on the part of producers and lack of insistence on the use of only first-class material where such material alone could give satisfaction." "Stone in 1915."

2H3 "*Flagstone*"

This is a name very commonly misapplied. In certain sections of the country, notably in Pennsylvania, where bluestone is largely used for sills, steps, copings, paving of terraces, garden walks and other purposes where roughness of texture is sought or smoothness is not a desideratum, it is commonly designated as "flagstone." This should be considered as referring to the treatment rather than the stone, for to the trade this means any good bluestone or other sandstone, ranging in color from gray through a blue-gray to a purplish tint, which has natural split surfaces on the flat exposure and bed and the thickness of which runs within the limitation of about 1½ to 4 inches. Above this thickness it becomes bluestone stock.

2H4 *Information Obtainable*

(A, B, C, U. S. Geological Survey. To obtain, see 2A1.)

(*a*) "The Sandstones of Western Indiana," T. C. Hopkins. Seventeenth Annual Report, pt. 3, pp. 780–787, 1896.
(*b*) "Brownstones of Pennsylvania," T. C. Hopkins. Eighteenth Annual Report, pt. 5, pp. 1025–1043, 1897.
(*c*) Sandstone is discussed in "Structural Materials Available near Minneapolis," in Bulletin No. 430, 1910. 60 cents.
(*d*) The Ohio State Survey, Prof. J. A. Bownocker, State Geologist Columbus, Ohio, has published a bulletin on "Building Stones" in which sandstone is referred to.
(*e*) "Report of the Committee on Stone Inquiry" referred to under 2J4*g* touches on sandstone.

2H5 *Other References* (See, also, 2J4 and 5.)

(*a*) For data pertaining to Kettle River Sand Stone, see Industrial Section, page XII.

2J1 Stone in General

"The stone industry as a whole has advanced with the development of the country in spite of severe competition with brick, Portland cement concrete, and certain other artificial stone products. The use of these materials has seriously affected the production of the lower grades of stone for foundations and to a less degree the production of building stone of higher grade, but it has had little or no effect on the use of monumental stone." —"Stone in 1915," 2A1*e*.

"The producers of building granite in the United States have an idea to try to interest the general public in granite, and will also work directly with architects and builders.

"The ordinary man who builds knows little or nothing about stone and frequently he cannot tell one variety of stone from another. Truth compels the admission that a surprisingly large proportion of architects is also woefully ignorant concerning one of the most important materials of construction. These people need to be told, not once nor spasmodically, but constantly and convincingly, of the nature and physical characteristics of stone, of its eventual cheapness because of its durability, and of its beauty, fitness and adaptability for every kind of building work. This is a task that does not belong to the individual quarry or stone mill, but to those associations that are formed to foster the interests of the entire trade." —"Stone."

Representing the interests of the stone industry in general there are two large national organizations which contain many producers within their memberships. These are:

2J2 *International Cut-Stone Contractors' and Quarrymen's Association*

Secretary: Wm. A. Guthrie, 1 West 42ndSt., New York City.

Holds an annual convention at which addresses are given and papers read concerning developments and progress in the stone industry. Purposes, membership and publications not stated.

2J3 *National Retail Monument Dealers' Association*

Secretary: Frank Mallon, Port Huron, Mich.

Purpose is to elevate the standard of the trade and to encourage the production of the best kinds of monumental work.

At each annual convention an exhibition is held exemplifying the progress in granite, marble and bronze work. For the next meeting and exhibition in Philadelphia, August, 1917, the coöperation of architects is to be invited.

2J4 *Information Obtainable*

(A and B, U. S. Geological Survey. To obtain, see 2A1.)

(*a*) "The Effects of the San Francisco Earthquake and Fire on Various Structures and Structural Materials, Richard L. Humphrey. Bulletin No. 324 of the U. S. Geological Survey, 1907. Pp. 14–61. 50 cents. Also pp. 62–130 in same, "The Effect of the San Francisco Earthquake on Buildings, Engineering Structures and Structural Materials," J. S. Sewell. The next following Bulletin also deals with the effect of fire on building stone.
(*b*) "The Fire-Resistive Properties of Various Building Materials," Richard L. Humphrey. Bulletin No. 370, U. S. Geological Survey, 99 pp., 1909. 30 cents.
(*c*) In the annual report of the Chief of Ordinance, Watertown Arsenal, referred to under 1B1*b* will frequently be found results of tests on various building stones.
(*d*) There are some deposits of building stone within the state of Mississippi that are worthy of consideration. These are described in Bulletin No. 12 recently issued by the Mississippi State Geological Survey, E. N. Lowe, director.
(*e*) "Setting and Pointing Stonework," Carl C. Holloway in Journal of the Society of Constructors of Federal Buildings (2A4*a*) November, 1914.
(*f*) "Report of the Committee on Stone Inquiry," (2A4*a*), in Journal just referred to, January, 1916. Preliminary Report.
(*g*) "Ditto, Later Report, Journal for Dec., 1916.
(*h*) "Stones for Building and Decoration," by Prof. S. B. Merrill, Curator of Geology in the U. S. National Museum, Washington, D. C.

2J5 *Other References*

(*a*) "Report on the Compressive Strength, Specific Gravity and Ratio of Absorption of the Building Stones in the United States," General Q. O. Gilmore.
(*b*) "Building Stones and Clays, Their Origin, Character and Examination," E. C. Eckel.
(*c*) "Modern Stone-Cutting and Masonry," John S. Siebert and F. C. Biggin.
(*d*) "Masonry and Stone-Cutting," E. Dobson.
(*e*) "Building Construction and Superintendence," F. E. Kidder. Part I, "Building Stones," pp. 205–262 and pp. 878–891; "Cut-Stone Work," pp. 263–310.
(*f*) "Building Stones and Clay Products. A Handbook for Architects," Heinreich Ries.
(*g*) "American Civil Engineers Pocket Book," M. Merriman. "Stone Quarrying and Cutting," pp. 496–508.
(*h*) "Building Trades Handbook." "Materials of Masonry Construction," pp. 145–228.
(*j*) "Fire Prevention and Fire Protection," J. K. Freitag. Pp.216–219.
(*k*) "Engineering Geology," H. Ries and T. L. Watson.
(*l*) "Engineering Contracts and Specifications," J. B. Johnson.
(*m*) Trautwine's Civil Engineer's Pocket Book.
(*n*) See, also, Industrial Section, pp. VIII–XIV

2J6 *Soapstone*

In the production of soapstone the United States ranks first among all countries, and Virginia produces about twenty times as much as the four other producing states—Maryland, North Carolina, Rhode Island, and Vermont. The waste from breakage in quarrying, sawing into slabs, manufacturing, and final transportation is so great as to render success in the industry a matter of skilful manipulation. The value of the stone is in large measure proportionate to the work done upon it. In the rough it is valued at $2 or less a ton, but when sawed into slabs its value is increased to about $15, and when made into laundry-tubs it may attain a value of about $30 a ton. The production of soapstone and talc in the United States is steadily increasing.—U. S. Geological Survey, Press Bulletin, November, 1916.

2J7 *Practice Recommended by various Authorities*

There is a lack of information from organized sources with respect to building stones and their best uses. This may be due partly to the fact that so much of the stone produced is used for other than building construction.

Recommendations of individual writers and authorities and of well-known producers or companies will be found under Information Obtainable and Other References.

By the National Board of Fire Underwriters (Serial No. 3):

(*a*) "Building Code Recommended," 1915. Weights of Materials, p. 84; Concrete and Masonry, Compression, 86; Part VI, Walls, pp. 34–50.

(*b*) "Dwelling Houses, A Code of Suggestions for Construction and Fire Protection," 1916. Part III, Walls, pp. 21–31.

2J8 *Standards*

The Lack of Uniformity in Measuring Stone.

Owing to the variety of uses to which stone is put, there is no regular unit of measurement employed by the quarryman, the stone being sold by the cubic yard, cubic foot, ton, cord, perch, rod, square foot, square yard, square, or other unit. Building and monumental stone, especially the dressed product, is usually sold by the cubic foot or the cubic yard, although this unit varies with the class of stone and with the locality. A large quantity of the rough stone is sold by the perch, cord, or ton. Rubble and riprap, including stone for such heavy masonry as breakwater and jetty work, are generally sold by the cord or ton. Fluxing stone and stone for chemical use is sold by either the long or the short ton. Flagstone and curbstone are sold by the square yard or the square foot, the thickness being variable and dependent on the orders received. Crushed stone is reported as sold by the cubic yard or ton, the short ton being more generally used.

The perch is legally defined in many older states as 24¾ cubic feet; in some states, and even within a single state, it varies from 16½ through 20, 22, 25 to 27 cubic feet; and in others it is defined as equivalent to 2,200, 2,500, 2,700, 2,800, and 3,000 pounds. The cord in some states is measured in feet—for instance, 128 cubic feet in the quarry or 100 feet in the wall; in others it denotes weight and is variously defined as equivalent to 11,000 12,000, 12,500, and 13,000 pounds. The weight of a cubic yard of crushed stone varies from 2,300 to 3,000 pounds, the average weight being about 2,500 pounds. In certain localities this crushed stone is sold by the "square" of 100 square feet by 1 foot, or 100 cubic feet. It is also of interest to note the selling of crushed stone by the bushel, 21½ bushels representing a cubic yard of about 2,700 pounds.

[Editor's Note.—The above quotation from "Stone in 1915" (2A1*d*) emphasizes the necessity for concerted action in bringing about, if possible, uniform methods of measurement for stone in all parts of the country. This matter will be brought to the attention of the Institute's Committee on Materials and Methods in the hope that through its subcommittes in the various Chapters some line of action may be determined upon to assist in bringing about standardization.]

2J9 *Current Activities*

Investigation of Building Stones in the United States.

(*a*) In coöperation by the Geological Survey with the Bureau of Mines, 200 samples of marble, limestone, sandstone, and granite have been collected from various quarries in all sections of the country. Testing has been confined chiefly to the marbles, and includes the determination of compressive strength, on wet and dry specimens, on bed and on edge, transverse perpendicular and parallel to bed, percentage of water absorption, tensile strength perpendicular and parallel to bed, specific gravity, weight per cubic foot, porosity, hardness, coefficient of expansion, heat conductivity, electrical conductivity, and resistance to the action of frost. Various building stones submitted by other Government departments and state governments have been investigated to determine their suitability for particular purposes. A collection is being made of samples of all the important building stones for the establishment of a permanent file. At present seventy-five slabs of polished marble, 8 inches by 12 inches, have been collected from typical quarries in the eastern and southern states. These will be filed in a manner to enable persons interested to study and compare the general features of the different types. This collection when complete will consist of samples from all the principal quarries of the country. A paper containing the results of the tests available on building stones will probably be published during the ensuing year. (Report Bureau of Standards, 1916.)

(*b*) The Bureau of Mines (2A3) is investigating problems connected with the mining and technology of various building stones. Bulletin No. 106, "The Technology of Marble Quarrying (2F3j), was recently published and a report on the quarrying of sandstone will shortly be issued.

(*c*) The International Cut Stone Contractors' and Quarrymen's Association of North America has conducted an investigation of the air-hammer as injurious to the users. Some of the results of the inquiry are reported in the Association's monthly leaflet.

(*d*) *Automatic Freezing and Thawing Apparatus for Testing Building Stones.*

"A unique apparatus has been designed to automatically move a charge of stone, concrete or other material back and forth from a freezing-chamber to a thawing-chamber at the intervals required to completely congeal and thaw the contained moisture. With this apparatus it is expected that 80 or 100 freezings can be made in one day. Thus, a great number of freezings on a sample of stone or other material can be made. By comparison of the results with actual observations on structures showing disintegration at the end of a known period of exposure, it will be possible to predict with some degree of accuracy the number of years' service that can be expected from any material under these conditions."—From the Report, Bureau of Standards 1916, 1A2*a*.

2J10 *Current Comment*

(*a*) *Selling Stone by Sample.*—"Stone is a product of Nature's laboratory, and there may be decided variations within a single bed or ledge. For this reason there are few problems before the quarryman of greater importance than the preparation of the samples upon which he is to depend for the bringing of business.

"When an architect is considering stone, his fancy may be captivated by particular markings or by a special tint or shade in the sample before him. He specifies this stone, but when it is delivered on the job he finds that only a small percentage of it has those peculiar qualities. The quarryman may truthfully say that all stone is likely to show variations in its natural bed and, that it is utterly impossible to match exactly a small sample in the entire material for a great building. But what shall he say when the architect asks him why it is that his sample apparently represents only 10 per cent of the quarry output, instead of the remaining 90 per cent? Even if his stone is finally accepted for the building, it is a poor business policy if he has disappointed a purchaser.

"The wisest business judgment dictates that all samples submitted in competition should be chosen with the most scrupulous care to show 'the run of the quarry.'

"In most quarries the stone varies more or less widely in different beds. In other words, Nature has graded it herself. The trouble often is that the quarryman does not follow this excellent example and grade the stone for the trade. He will submit a sample of what is Grade No. 1 and then wonder that he has difficulty in getting a good deal of Grade No. 2 accepted on the job. If the dealer would frankly submit samples of both the first and second grade stone, and make a difference in the price of each, he would find that it would frequently bring him business. The inferior stone may be exactly as strong and durable and fit for building work as the better grade, differing only in some slight point of appearance. Architects would often be willing to use the second grade stone in certain parts of some buildings, where it could not possibly be noticed from the street-level, if they found that this would materially lessen the cost of the structure."—*Stone*, July, 1916.

2K1 Slate

The slate resources of the country, like the other mineral resources, are treated in publications of the U. S. Geological Survey, particularly in Chapters on Slate issued annually (2A1*c* and *d*) from which the statistical and other information within quotation-marks in this section is taken.

The total value of the slate sold in 1915 was: roofing slate $3,746, 334; mill stock $819,672.

In this industry no National Organization appears to exist but some locality organizations have been formed. Information about them seems to be difficult to obtain, though one from which we have heard is:

2K2 *Bangor Slate Association, Incorporated*

Secretary: L. M. Cowling, Bangor, Pa.

Composed of producers in this locality who manufacture slate for roofing or structural purposes.

To give information about genuine Bangor slate and to see that it is used when specified is the sole object of this Association.

Standards:

Has adopted a trade-mark, registered in the U. S. Patent office, a duplicate of which, according to the booklet of the Association (2K2*a*), is pasted on the reverse side of every slate marketed from the genuine Bangor Vein.

Publications:

(*a*) Booklet entitled "Genuine Bangor Slate" for general distribution (not dated or numbered).

(*b*) Specifications for "Genuine Bangor Slate Roofs for Flat Roofs" (over concrete and over sheathing) upon request.

2K3

"The slate production of the United States is practically confined to the northeastern part of the country. Although scattered deposits, more or less developed, occur elsewhere, this eastern slate is shipped to supply markets on the western coast as well as in the central and southern parts of the country. The slate of most of the deposits in the various states has been described either in Bulletin No. 586 of the U. S. Geological Survey or in previous reports on the slate industry. Slate is classified as roofing slate and mill stock, and the use for these different purposes depends largely, although not entirely, on character of the slate."

(*a*) *Mill Stock:* "Mill stock requires a finer, more even-grained, and more compact material than roofing slate, and a material with a smooth cleavage surface. It must be of a fairly uniform color and not too hard to be easily worked by the slate-dressing machinery. The slates of Maine and Vermont and the 'soft-vein' slates of Lehigh and Northampton counties, Pa., are well adapted for mill stock, and these slates are also among the best of the roofing slates. The Arkansas slate has been used both for electrical and roofing purposes, and the Maryland and New York quarries also furnish a small quantity of mill stock."

"Mill stock includes slate used for blackboards, school slates, flooring, wainscoting, vats, tiles, sinks, laundry-tubs, grave-vaults, sanitary ware, refrigerator shelves, flour-bins and dough-troughs for bakeries, electrical switch-boards, mantels, hearths, well-caps, and tops for billiard, laboratory, kitchen, and other tables."

"Lehigh and Northampton counties, Pa., report the only stock produced for school slates and blackboards. The quarries in these counties can best produce this material on account of the unusually fine cleavage of the slate and the thickness and size of the beds."

(*b*) *Roofing Slate:* "Slate used for roofing is not necessarily of so fine a texture nor of so smooth a cleavage as the mill stock, but it must be hard, strong, and tough, and should not contain carbonates or iron pyrites, which decompose or oxidize under atmospheric conditions. A description of the process of dressing roofing slates was given in the report on slate in 'Mineral Resources' for 1911. (2K4*m*.)"

"Nearly 73 per cent of the value of the slate production in the United States in 1914 was represented by slate for roofing, and the roofing-slate output from Pennsylvania and Vermont represented, respectively, about 59 and 29 per cent of the total value of the roofing slate produced. Besides roofing slate Pennsylvania and Vermont produce also mill stock; practically the only use of slate from the other producing states, except Maine, is for roofing."

2K4 *Information Obtainable*

The following are listed from selected publications through the courtesy of the U. S. Geological Survey (2A1); other lists will be furnished upon application to the Journal.

(*a*) "Chemical Notes on the Composition of the Roofing Slates of Eastern New York and Western Vermont," W. F. Hillebrand. Nineteenth Annual Report, pt. 3, pp. 301–305, 1899. $2.25.

(*b*) "The Slate Belt of Eastern New York and Western Vermont," T. N. Dale. Nineteenth Annual Report, pt. 3, pp. 153–200, 1899. $2.25.

(*c*) "The Slate Industry of Slatington, Pa., and Martinsburg, W. Va.," T. N. Dale. Bulletin No. 213, pp. 361–364, 1903. (Exhausted.)

(*d*) "Notes on Arkansas Roofing Slates," T. N. Dale. Bulletin No. 225, pp. 414–416, 1904. 35 cents.

(*e*) "Slate Deposits of California and Utah," E. C. Eckel. Bulletin No. 225, pp. 417–422, 1904. 35 cents.

(*f*) "Slate Investigations During 1904," T. N. Dale. Bulletin No. 260, pp. 486–488, 1905. (Exhausted.)

(*g*) "Note on a New Variety of Maine Slate," T. N. Dale. Bulletin No. 285, pp. 449–50, 1906. (Exhausted.)

(*h*) "The Slates of Arkansas," A. H. Purdue. Bulletin No. 430, pp. 317–334, 1910. 60 cents.

(*j*) "Slate Deposits and Slate Industry of the United States," T. N. Dale and others. Bulletin No. 586, 1914. A revised edition of Bulletin No. 275.

(*k*) The state geological surveys of Arkansas, California, Maryland, and New Jersey have published descriptions of the slate and the slate deposits of these states, and information as to these publications may be had by applying to the respective state geologists.

(*l*) Apublication by E. C. Eckel, "Building-Stones and Clays, Their Origin, Character, and Examination," contains a chapter on slate, which gives information on the slates of the United States and of foreign countries and also many analyses and tests of slate.

2K5 *Other References*

(*a*) "Kidder's Pocket Book, 1916." (See its Index "Slate.")
(*b*) "American Civil Engineers Pocket Book," M. Merriman.
(*c*) "Building Construction and Superintendence," F. E. Kidder. Part I, "Slates," pp. 241–247, 892–899.
(*d*) "Building Trades Handbook. "Slate Roofs," pp. 314-317, 366–367.
(*e*) "Fire Prevention and Fire Protection," J. K. Freitag. Pp. 521–522 682–684.
(*f*) Trautwine's Civil Engineer's Pocket Book.
(*g*) "Carnegie Pocket Companion 1916." Pp. 339–341.
(*h*) "Genuine Bangor Slate." Booklet (2K2*a*.)
(*j*) See, also, Industrial Section, pp. IX, X, XIV.

2K6 *Practice Recommended by Various Authorities*

(*a*) *Thicknesses.*—It has been suggested that a failure to recognize a certain minimum thickness for slates has been unfavorable to the industry; that some producers are in the habit of splitting their slates too thin; and that the insistence by architects and the general public on thicker slates would result in much less breakage, a higher standard of splitting and sorting slates, and the marketing of a product of higher grade. The minimum thickness suggested is three sixteenths of an inch for the strongest slates and fully a quarter of an inch for the common slates of somewhat less strength. The growing demand for thicker slates to produce rough effects should assist in this development of the industry. ("Stone in 1915" 2A1*d*.)

(*b*) *Slope.*—Slate makes a good roof if of good quality and properly watched. It breaks easily and cannot be walked on without damage to the slate.

Tile of good quality gives good results. It is not so tight as slate, but does not break easily. It has architectural value and its use is growing with improvement in the product and in the variety of colors.

Slate and tile of suitable quality, properly protected and fastened, can be recommended on roofs with a pitch of six (6) inches to the foot or over, where expense is not the governing feature, and where they aid in producing the desired architectural effect, except that where there is much chance of driving snow, eight (8) inches to the foot should be the flattest slope allowed. (Committee on Buildings, American Railway Engineering Association, 1A9*e*.)

(*c*) *Flat Surfaces.*—Slate is being much used for flat roofs and for terrace paving, garden walks and similar purposes. For concrete underfills for latter uses see 1E9 and for a suggested flat roof treatment see "Standard Specifications for Use over Concrete" as put forth by the North Bangor Slate Company in collaboration with the Barrett Manufacturing Company, printed on page X of the Industrial Section.

(*d*) By the National Board of Fire Underwriters (Serial No. 3): "Building Code Recommended," 1915. Part XV. "Roofs and Roof Structures." Pp. 102–108.

(*e*) By the National Board of Fire Underwriters (Serial No. 3): "Dwelling Houses, A Code of Suggestions for Construction and Fire Protection," 1916. Part IV. "Roofings, Approved Fire-Resistive Materials for. P. 135.

2K7 *General Standards*

(*a*) *Roofing Slate—Navy Department Specifications. Serial designation 59S1*, February 1, 1915.

General:

(1) Slate shall be of the dimensions specified, not less than $\frac{3}{16}$ inch thick, best quality, uniform in size, color, texture, and composition; sound, dark blue or black, or other color desired. Tails and edges shall be cut square and true. Nail-holes shall be drilled and countersunk for the heads of nails. Slate shall be free from warped surfaces, quartz ribbons, or quartz particles, and the presence of injurious carbonates and sulphides shall be cause for rejection. Where unfading slate is desired, or the slate is to be exposed to acid fumes, slates which effervesce with hydrochloric acid applied as follows shall be rejected: Hydrochloric acid having a specific gravity of about 1.20 at 60°F. or about 38 per cent of absolute acid is to be diluted so that 60 per cent by volume of the diluted acid shall be water. This acid is to be applied to the freshly broken edges of the slate.

Trade Name:

(2) Bidders shall state trade name of slate, name and locality of quarry, and, where required, submit sample of the slate which they propose to furnish.

NOTE.—Copies of the above specifications can be obtained upon application to the various Navy pay offices or to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

(*b*) *Of Measurement and Size of Roofing Slate.*—Roofing slate is sold in the United States by the "square," a "square" being a sufficient number, of pieces of slate of any size to cover 100 square feet of roof, with allowance generally for a 3-inch lap. The size of the pieces of slate making up a square ranges from 7 by 9 inches to 16 by 24 inches, and the number of pieces in a square ranges from 85 to 686, according to the size of the pieces. The ordinary thickness of a piece is from $\frac{1}{8}$ to $\frac{3}{16}$ inch, and the approximate weight per square is about 650 pounds.—From "Mineral Resources of the U. S.," 1915, 2A1*d*.

(*c*) *Of Laying Cost of Roofing Slate.*—"The square is also the basis on which the cost of laying is measured. 'Eaves, hips, valleys, and cuttings against walls or dormers are measured extra; 1 foot wide by their whole length, the extra charge being made for waste material and the increased labor required in cutting and fitting. Openings less than 3 square feet are not deducted, and all cuttings around them are measured extra. Extra charges are also made for borders, figures, and any change of color of the work and for steeples, towers, and perpendicular surfaces.' "—From "Kidder's Pocket Book," 1916. P. 1499.

2K8 *Current Comments*

(*a*) "The U. S. Geological Survey in 'Stone in 1915' says: 'For several years slate has suffered from competition with artificial roofing materials, which have been aggressively advertised, and from the increasing number of factories, dwellings, schools, and other buildings that have been built with flat roofs. Some slate-producers complain that there is a general apathy on the part of slate companies in meeting these conditions; that inadequate advertising of slate is largely responsible for the inroads made by well-advertised artificial materials; and that the failure of companies to coöperate in promoting its development has allowed the slate industry to remain nearly stationary or to decline, while other competing industries have made substantial progress.' "

(*b*) *Graduated and Variegated Roofing.*—A decided impetus has in recent years been given the roofing slate industry through the activities of a few resourceful producers who have coöperated with some architects in procuring roofs distinctive in this country though happily to be found in abundance in Europe. There, as here, the effect desired is obtained by utilizing to the full the materials with which the quarries abound including the largest range of color and varying sizes and thicknesses. Naturally, however, the cost of production, transportation and laying increases the cost of the roof but not out of proportion to the effect desired. Notes pertaining to this kind of roofing as the "Old English Method" will be found in "Kidder's Pocket Book," 1916, page 1498.

(*c*) As applicable also to slate, see "Selling Stone by Sample" 2J10.

Industrial Section Classified Index

Asbestos Products. (Serial No. later) — Page
Johns-Manville, H. W., Co. XXXII

Boilers (Copper). (Serial No. later)
Badger, E. B., & Sons Co. XXXVIII

Brick. (Serial No. later)
Hydraulic Press Brick Co. XLII

Blue Prints. (Serial No. later)
N. Y. Blue Print Paper Co. XXXIII

Bronze (Architectural). (Serial No. later)
Gorham Company, The III

Cement and Concrete. Serial No. 1E
Alpha Portland Cement Co. XXXVII
Atlas Portland Cement Co. XLIII
Atlas White Cement XXVI

Conduits. (Serial No. later)
National Metal Molding Co. XXXVIII

Chutes (Laundry). (Serial No. later)
Pfaudler Co., The XXIII

Chutes (Mail). (Serial No. later)
Cutler Mail Chute Co. XVII1

Dumbwaiters. (Serial No. later)
Sedgwick Machine Works XL

Electrical Fittings and Supplies. (Serial No. later)
General Electric Co. VI
National Metal Molding Co. XXXVIII
Wakefield & McNabb V

Elevators (Electric). (Serial No. later)
See, A. B., & Co. IV

Elevators (Hand). (Serial No. later)
Sedgwick Machine Works XL

Elevator Signals. (Serial No. later)
Wakefied & McNabb V

Engineering Service. Serial No. 1
Corrugated Bar Co. XXXIX

Fireplaces. (Serial No. later)
Colonial Fireplace Co. XXXI

Financing Building Operations. (Serial No. later)
Straus, S. W., & Co. XXI

Fittings (Gas, Steam, Water).
Crane Company XXVII

Flooring. (Serial No. later)
American Flooring Co. XLI

Flooring Underfills. Serial No. 1E10

Floor Hardener. (Serial No. later)
Sonneborn, L., Sons, Inc. . . . . 3rd Cover

Glass (Stained). (Serial No. later)
Heinigke & Smith XLI

Granite. Serial No. 2E1D
Presbrey-Coykendall Co. XIII
Webb Pink Granite Co. XIV

Glass (Wire). (Serial No. later)
Mississippi Wire Glass XXIII

Heating. (Serial No. later) — Page
Vapor Heating Co. XXXI
American Radiator Co. XXII

Hoists. (Serial No. later)
Gillis & Geoghegan XIX

Insulations. (Serial No. later)
Johns-Manville, H. W., Co. XXXII
Magnesia Association of America VII

Laboratories (Testing and Research). Serial No. 1B

Lath (Metal). (Serial No. later)
Northwestern Expanded Metal Co. XIX
General Fireproofing Co. XXXVIII

Laundry Chutes. (Serial No. later)
Pfaudler Co. XXIII

Limestone. Serial No. 2G1.
Indiana Limestone Quarrymen's Association . XI

Mail Chutes. (Serial No. later)
Cutler Mail Chute Co. XVIII

Monuments and Mausoleums. Serial No. 2E1
Presbrey-Coykendall Co. XIII

Paints (Steel and Iron Preservative). Serial No. 1F8

Paints, Varnish and Enamel. (Serial No. later)
Matheson Lead Co. XXXIII
Boston Varnish Co. XXXIV

Paints (Waterproofing). Serial No. 1D.
Toch Bros. XVI
Semet-Solvay Co., The XXXIII

Pencils. (Serial No. later)
Dixon, Jos., Crucible Co. XV

Piles (Concrete). Serial No. 1C.

Pipe (Cast Iron). (Serial No. later)
Cast Iron Soil Pipe Makers' Association . XXXV–XXXVI

Plumbing Equipment. (Serial No. later)
Badger, E. B., & Sons Co. XXXVIII
Kohler Co. XXIX
Standard Sanitary Mfg. Co. XXX
Trenton Potteries Co., The XL
Fairfacts Co., The XXIV

Quantity Survey. (Serial No. later)
Quantity Survey Co. . . . . 4th Cover

Refrigerators. (Serial No. later)
McCray Refrigerator Co. XXI

Roofing. (Serial No. later)
American Sheet & Tin Plate Co. XXXI
Johns-Manville, H. W., Co. XXXII
Standard Stained Shingle Co. XLI
Taylor, N. & G., Co. XLI
Merchant & Evans Co. XLI

Sandstone. Serial No. 2H1.
Kettle River Company XII

Screens. (Serial No. later)
Watson Mfg. Co. XIX

INDUSTRIAL SECTION CLASSIFIED INDEX

Slate. Serial No. 2K1 — Page
General Slate Co. . . . IX
North Bangor Slate Co. . . . X

Stains, Shingle. (Serial No. later)
Cabot, Samuel, Inc. . . . XXXI

Stone. Serial No. 2J1
Indiana Limestone Quarrymen's Association . . . XI
Webb Pink Granite Co. . . . XIV
Kettle River Co. . . . XII

Stucco Board. (Serial No. later)
Mastic Wall Board and Roofing Co., The . . 2d Cover

Telephone System. (Serial No. later)
New York Telephone Co. . . . XX

Terra Cotta. (Serial No. later) — Page
Northwestern Terra Cotta Co. . . . XXV

Vacuum Cleaners. (Serial No. later)
American Radiator Co. . . . XXII

Water-heaters (Gas). (Serial No. later)
Humphrey Co. . . . XVII

Waterproofing and Damp-proofing. Serial No. 1D
General Fireproofing Co. . . . XXXVIII
Sonneborn, L., Sons, Inc. . . . 3d Cover
Toch Bros. . . . XVI
Semet-Solvay Co. . . . XXXIII

Wood. (Serial No. later)
White Pine Bureau . . . XXVIII

Industrial Section Index

Page

Alpha Portland Cement Co. . . . XXXVII
American Flooring Co. . . . XLI
American Radiator Co. . . . XXII
American Sheet & Tin Plate Co. . . . XXXI
Atlas Portland Cement Co. . . . XLIII
Atlas White Cement . . . XXVI
Badger, E. B., & Sons Co. . . . XXXVIII
Beaux-Arts Architects, Society of . . . XXII
Boston Varnish Co. . . . XXXIV
Cabot, Samuel, Co. . . . XXXI
Cast Iron Soil Pipe Makers' Association . . XXXV–XXXVI
Colonial Fireplace Co. . . . XXXI
Corrugated Bar Co. . . . XXXIX
Crane Co. . . . XXVII
Cutler Mail Chute Co. . . . XVIII
Dixon, Jos., Crucible Co. . . . XV
Fairfacts Co., The . . . XXIV
General Electric Co. . . . VI
General Fireproofing Co. . . . XXXVIII
General Slate Co. . . . IX
Gillis & Geoghegan . . . XIX
Gorham Co., The . . . III
Heinigke & Smith . . . XLI
Humphrey Co. . . . XVII
Hydraulic Press Brick Co. . . . XLII
Indiana Limestone Quarrymen's Association . . XI
Johns-Manville, H. W., Co. . . . XXXII
O. W. Ketcham Terra Cotta Works . . . XVI
Kettle River Co. . . . XII
Kohler Co. . . . XXIX
Magnesium Asso'n of America . . . VII

Page

Mastic Wall Board & Roofing Co. . . . 2d cover
Matheson Lead Co. . . . XXXIII
McCray Refrigerator Co. . . . XXI
Merchant & Evans Co. . . . XLI
Mississippi Wire Glass Co. . . . XXIII
National Metal Molding Co. . . . XXXVIII
New York Blue Print Paper Co. . . . XXXIII
New York Telephone Co. . . . XX
North Bangor Slate Co. . . . X
Northwestern Expanded Metal Co. . . . XIX
Northwestern Terra Cotta Co. . . . XXV
Pfaudler Co. . . . XXIII
Presbrey-Coykendall Co. . . . XIII
Quantity Survey Co. . . . 4th cover
Sedgwick Machine Works . . . XL
See, A. B., Electric Elevator Co. . . . IV
Semet-Solvay Co., The . . . XXXIII
Sonneborn, L., Sons, Inc. . . . 3rd cover
Standard Documents . . . XXII
Standard Sanitary Mfg. Co. . . . XXX
Standard Stained Shingle Co. . . . XLI
Straus, S. W., Co. . . . XXI
Taylor, N. & G., Co. . . . XLI
Toch Brothers . . . XV
Trenton Potteries Co. . . . XL
Vapor Heating Co. . . . XXXI
Wakefield & McNabb . . . V
Watson Mfg. Co. . . . XIX
Webb Pink Granite Co. . . . XIV
White Pine Bureau . . . XXVII

GENERAL SLATE COMPANY

Asks leave, in appearing in this issue of the Journal of the American Institute of Architects, to introduce itself to the profession.

It has recently been organized for the purpose of acquiring and operating the Monson Lustre quarry, the largest producer of Maine roofing slate; the D. C. Sherman quarry near Fair Haven, Vermont, one of the largest producers of unfading purple, mottled, and green Vermont slates; and one or two quarries producing other colors. It plans shortly to equip and operate receiving yards for concentrating at, and distributing from, convenient shipping points its own output of roofing slate and that of a number of other quarries. Still later, it will produce structural slate. It can now furnish terrace and other flagging slate.

It is well known that the roofing slate business requires better service, better producing and shipping facilities, and quicker deliveries. General Slate Company plans to provide all these, and to accept no orders it cannot fill when and as promised; hoping in that way to build a trade upon the solid foundation of willingness and honesty of service. It feels that Architects will appreciate these things and hopes for their recognition accordingly.

GENERAL SLATE COMPANY
Fine Unfading Maine and Vermont Slates
SUCCESSOR TO
Monson Lustre Slate Company Maine Slate Company of Monson
D. C. Sherman Slate Company
200 DEVONSHIRE STREET, BOSTON

Samples filed with

ARCHITECTS SAMPLES CORPORATION
Park Avenue and Fortieth Street
New York, N. Y.

BUILDING MATERIAL EXHIBIT
Fifth Avenue and Sherman Street
Chicago, Ill.